

## PART I

### 1. EFSEC COMPLIANCE SUMMARY

Part 1 of the Application for Site Certification (ASC) is a summary of how the Application for the Cherry Point Cogeneration Project (Cogeneration Project) complies with the requirements of Title 463 Washington Administrative Code (WAC), Chapter 463-42. As a reference, Table 1-1 lists the WAC requirement as follows:

- WAC Code and Topic are noted in the first column, and
- Section of the ASC where the WAC section is addressed, in the second column.

**TABLE 1-1**

Application for Site Certification: Location of Information  
Required By Chapter 463-42 WAC

<b>Washington Administrative Code (WAC)</b>	<b>Location in Application for Site Certification</b>
<b>463-42-010</b> Purpose and Scope	Application in Total
<b>463-42-012</b> General Organization	Application in Total
<b>463-42-015</b> Description of Applicant	Cover Letter
<b>463-42-025</b> Designation of Agent	Cover Letter
<b>463-42-035</b> Fee	Hand Delivered
<b>463-42-045</b> Where Filed	EFSEC
<b>General</b>	
<b>463-42-055</b> Form and Number of Copies	Cover Letter
<b>463-42-065</b> Full Disclosure by Applicant	Cover Letter
<b>463-42-075</b> Assurances	Part III, Appendix A – Assurances
<b>463-42-085</b> Mitigation Measures	Part III, Appendix O – Mitigation Measures
<b>463-42-095</b> Sources of Information	Part II, Chapter 4 Part III, Appendix B – General Sources of Information
<b>463-42-105</b> Graphic Material	Application in Total
<b>463-42-115</b> Specific Contents and Applicability	Cover Letter

<b>Washington Administrative Code (WAC)</b>	<b>Location in Application for Site Certification</b>
<b>Proposal</b>	
<b>463-42-125</b> Site Description	Part I, Section 1.14 Part II, Chapter 1 Appendix D – Project Description
<b>463-42-135</b> Legal Description and Ownership Interests	Part I, Section 1.15 Part III, Appendix C – Legal Description
<b>463-42-145</b> Construction on Site	Part I, Section 1.16 Part II, Chapter 2 Appendix D – Project Description
<b>463-42-155</b> Energy Transmission System	Part I, Section 1.17 Part II, Section 3.8
<b>463-42-165</b> Water Supply System	Part I, Section 1.18 Part II, Section 3.3 Part III, Appendix F - Water
<b>463-42-175</b> System of Heat Dissipation	Part I, Section 1.19 Part II Section, Chapter 2 Part III Appendix D – Project Description
<b>463-42-185</b> Characteristics of Aquatic Discharge System	Part I, Section 1.20 Part II, Section 3.3 Part III, Appendix F – Water
<b>463-42-195</b> Wastewater Treatment	Part I, Section 1.21 Part II, Section 3.3 Part III, Appendix F – Water
<b>463-42-205</b> Spillage Prevention and Control	Part I, Section 1.22 Part II, Section 3.3 Part III, Appendix F – Water Part III, Appendix J – Emergency and Security Plans
<b>463-42-215</b> Surface-Water Runoff	Part I, Section 1.23 Part II, Section 3.3 Part III, Appendix F - Water
<b>463-42-225</b> Emission Control	Part I, Section 1.24 Part II, Section 3.2 Part III, Appendix E – Air Quality
<b>463-42-235</b> Construction and Operation Activities	Part I, Section 1.25 Part III Appendix D – Project Description
<b>463-42-245</b> Construction Management	Part I, Section 1.26 Part III Appendix D – Project Description
<b>463-42-255</b> Construction Methodology	Part I, Section 1.27 Part III Appendix D – Project Description
<b>463-42-265</b> Protection from Natural Hazards	Part I, Section 1.28 Part III, Appendix G
<b>463-42-275</b> Security Concerns	Part I, Section 1.29 Part II, Section 3.16 Part III, Appendix J – Emergency and Security Plans
<b>463-42-285</b> Study Schedules	Part I, Section 1.30 Part III, Appendix N – Study Schedules

<b>Washington Administrative Code (WAC)</b>	<b>Location in Application for Site Certification</b>
<b>463-42-295</b> Potential for Future Activities at Site	Part I, Section 1.31 Part I, Section 1.31
<b>Natural Environment</b>	
<b>463-42-302</b> Natural Environment – Earth	Part I, Section 1.32 Part II, Section 3.1 Part III, Appendix G - Earth
<b>463-42-312</b> Natural Environment – Air	Part II, Section 1.33 Part III, Appendix E – Air Quality
<b>463-42-322</b> Natural Environment – Water	Part I, Section 1.34 Part II, Section 3.3. Part III, Appendix F - Water
<b>463-42-332</b> Natural Environment – Plants and Animals	Part I, Section 1.35 Part II, Sections 3.4, 3.5, 3.6, and 3.7 Part III, Appendix H – Plants and Animals
<b>463-42-342</b> Natural Environment – Energy and Natural Resources	Part I, Section 1.36 Part II, Section 3.8
<b>Built Environment</b>	
<b>463-42-352</b> Built Environment – Environmental Health	Part I, Section 1.37 Part II, Section 3.9 & 3.16
<b>463-42-362</b> Built Environment – Land and Shoreline Use	Part I, Section 1.38 Part II, Section 3.11
<b>463-42-372</b> Built Environment – Transportation	Part I, Section 1.39 Part II, Section 3.15 Appendix I – Traffic and Transportation
<b>463-42-382</b> Built Environment – Public Services and Utilities	Part I, Section 1.40 Part II, Section 3.12, and 3.13 Part III, Appendix L- Population and Housing
<b>Additional WACs</b>	
<b>463-42-385</b> PSD Application	Part I, Section 1.41 Part II, Section 3.2 Part III, Appendix E – Air Quality
<b>463-42-435</b> NPDES Application	Request a Wavier Part I, Section 1.42 Part II, Section 3.2 Part III, Appendix E – Air Quality
<b>463-42-525</b> Emergency Plans	Part I, Section 1.43 Part II, Section 3.16 Part III, Appendix J – Emergency and Security Plans
<b>463-42-535</b> Socioeconomic Impact	Part I, Section 1.44 Part II, Sections 3.12, and 3.13 Appendix L – Population and Housing
<b>463-42-625</b> Criteria, Standards, and Factors Utilized to Develop Transmission Route	Request a waiver Part I, Section 1.45

<b>Washington Administrative Code (WAC)</b>	<b>Location in Application for Site Certification</b>
<b>463-42-645</b> Analysis of Alternatives	Part I, Section 1.46 Part II, Section 3.1 through 3.16 Part III, Appendix H – Plants and Animals (404b1, Alternatives Analysis)
<b>463-42-655</b> Initial Site Restoration Plan	Part I, Section 1.47 Part II, Section 3.1 through 3.16 Part III, Appendix M – Site Restoration
<b>463-42-665</b> Detailed Site Restoration Plan/Terminated Projects	No Response Necessary Part I, Section 1.48
<b>463-42-675</b> Site Preservation Plan Suspended Projects	No Response Necessary Part I, Section 1.49
<b>463-42-680</b> Site Restoration Terminated Project	No Response Necessary Part I, Section 1.50
<b>463-42-685</b> Pertinent Federal, State and Local Requirements	Part I, Section 1.51 Part II, Chapter 2, Section 2.4
<b>463-42-690</b> Amendments to applications, additional studies, procedure	Part I, Section 1.52

The text of each WAC section is reproduced below in italics, followed by a brief summary of the response that is provided elsewhere in this ASC.

### **1.1 WAC 463-42-010 Purpose and Scope**

*This chapter sets forth guidelines for preparation of applications for energy facility site certification pursuant to chapter 80.50 RCW.*

*The application shall provide the council with information regarding the applicant, the proposed project design and features, the natural environment, the built environment, and plans for project termination and site restoration. This information shall be in such detail as determined by the council to enable the council to go forward with its application review.*

The ASC, which includes this Compliance Summary (Part I), the Environmental Report (Part II), and Technical Appendices (Part III), provides detailed information about the project features and potential impacts.

### **1.2 WAC 463-42-012 General – Organization – Index**

*Except as may be otherwise approved by the council and except as otherwise provided below with respect to applications covering nuclear power plants, the contents of the application shall be organized in the same order as these guidelines.*

- (1) To aid in the council's review under SEPA and chapter 463-47 WAC, WAC 463-42-302 through 463-42-382 are similar to the elements required in an environmental impact statement.*
- (2) In the case of an application covering a nuclear power plant, the environmental report prepared for the nuclear regulatory commission may be substituted for*

*the comparable sections of the site certification application, provided that the environmental report is supplemented as necessary to comply with this chapter and that an index is included listing these guidelines in order and identifying where each applicable guideline is addressed.*

The ASC follows the organization recommended in the PSS.

### **1.3 WAC 463-42-015 General – Description of Applicant**

*The applicant shall provide an appropriate description of the applicant's organization and affiliations for this proposal.*

BP West Coast Products, LLC (BP) is the applicant proposing the Cogeneration Project. BP also owns and operates the BP Cherry Point Refinery (Refinery). A description of BP's organization and affiliations is provided in the cover letter to this ASC.

As a company, BP is actively involved in the Whatcom County community and encourages community involvement and corporate environmental stewardship. BP is the largest taxpayer and has been one of the largest employers in Whatcom County since 1971. BP has a proven record of responsible operations that safeguard employees and the environment.

BP has dedicated, sponsored, and supported numerous community initiatives, including:

- Voluntary fish habitat improvement initiatives, including removal of invasive weed species and riparian planting with native tree and shrub species, within the Terrell Creek watershed as part of the Nooksack Salmon Enhancement Project;
- Wetland enhancement projects north of Grandview Road;
- Designation of the 180-acre Terrell Creek Conservation Easement on BP-owned land to protect a blue heron colony near Birch Bay State Park, and participation in annual monitoring to evaluate and report on the health of the heron colonies;
- Construction of waterfowl habitat and food plots on BP-owned property north of Grandview Road in association with Ducks Unlimited;
- Designation of an interpretative site off of Jackson Road containing a diverse assortment of native trees and shrubs, which BP maintains in association with the Bellingham School District;
- Participation in a partnership with the Whatcom County PUD to supply and install solar panels on soccer fields in Bellingham;
- Construction of houses for low-income and under-privileged families in Ferndale; through the "Habitat for Humanity" Program;
- Participation in partnership programs with county school districts, including donation of video and learning series science programs, music and art education programs for the Whatcom Symphony Middle School Outreach Program; and
- Sponsoring athletic scholarships at Western Washington University.

BP is also an active participant in many Whatcom County organizations, including the United Way, Red Cross, Literacy Council and Rotary clubs.

#### **1.4 WAC 463-42-025 General – Designation of Agent**

*The applicant shall designate an agent to receive communications on behalf of the applicant.*

The names, address, telephone number, fax number and email addresses of BP's designated agent(s) are provided in the cover letter.

#### **1.5 WAC 463-42-035 General – Fee**

*The statutory fee shall accompany an application and shall be a condition precedent to any action by the council. Payment shall be by a cashier's check payable to the state treasurer.*

BP has provided a \$25,000 payment, in the form of a check to EFSEC, payable to the Washington State Treasurer.

#### **1.6 WAC 463-42-045 General – Where Filed**

*Applications for site certification shall be filed with the council at the council office.*

The application has been filed with the Council at 925 Plum Street SE, Bldg. 4  
P.O. Box 43172, Olympia, Washington 98504-3172.

#### **1.7 WAC 463-42-055 General – Form and Number of Copies**

- 1) *Applications shall be on 8-1/2 by 11" sheets, in loose-leaf form with a hard cover binder. Applicants shall supply thirty-five copies of the application to the council, two copies to each county, two copies to each city, and one copy to each port district in which the proposed project would be located. In addition, one copy shall be supplied to each intervenor on admission to the proceedings. Information later submitted shall be by page-for-page substitutions suitable for insertion in the application binder, bearing the date of the submission.*
- (3) *An applicant shall also provide the council copies of its application in a digital format for use in personal computers. Digital format shall be determined by the council in consultation with its consultants and the applicant.*

The ASC is in loose-leaf format with a hard cover binder, but for clarity, 11 - by-17-inch sheets are used for maps or figures. In addition to the 35 copies required by the code, an additional 65 copies have also been provided at the Council's request. An unbound camera-ready copy, and a digital copy of the entire document in Adobe Acrobat ".pdf" format will also be provided to the Council. [Revisions to the ASC are submitted in page-by-page or section-by-section replacements suitable for insertion in the application binder, and bearing the date of submission. BP provided the Council with 35 copies, plus an additional 53 copies of the Revisions at the Council's request. An unbound camera-ready copy and digital copy of the Revisions in Adobe Acrobat ".pdf" format will also be provided to the Council.](#)

## **1.8 WAC 463-42-065 General - Full Disclosure by Applicants**

*It is recognized that these guidelines can only be comprehensive in a relative sense. Therefore, and in addition to the other guidelines contained herein, the council adopts the basic guideline that an applicant for site certification must identify in the application all information known to the applicant that has a bearing on site certification.*

To the best of BP's knowledge, it has included in this ASC all information known to the company at the time of this submittal that has a bearing on site certification.

## **1.9 WAC 463-42-075 General – Assurances**

*The application shall set forth insurance, bonding or other arrangements proposed in order to mitigate for damage or loss to the physical or human environment caused by project construction, operation, abandonment, termination, or when operations cease at the completion of a project's life.*

Assurances are described in Part III, Appendix A.

## **1.10 WAC 463-42-085 General – Mitigation Measures**

*The application shall describe the means to be utilized to minimize or mitigate possible adverse impacts on the physical or human environments.*

Brief summaries of mitigation measures related to each element of the physical and human environment are presented in Part II, Chapter 3. A more detailed description of these measures is found in Appendix O (Proposed Mitigation Measures).

## **1.11 WAC 463-42-095 General – Sources of Information**

*The applicant shall disclose sources of all information and data and shall identify all preapplication studies bearing on the site and other sources of information.*

Sources of information that have been used to prepare this ASC, including information on author, date of publication, publisher, and other information to independently obtain the reference material, are presented in Part II, Chapter 4 of the ASC and in Appendix B (General Sources of Information).

## **1.12 WAC 463-42-105 General – Graphic Material**

*It is the intent that material submitted pursuant to these guidelines shall be descriptive and shall include illustrative graphics in addition to narration. This requirement shall particularly apply to subject matter that deals with systems, processes, and spatial relationship. The material so submitted shall be prepared in a professional manner and in such form and scale as to be understood by those who may review it.*

The ASC contains numerous illustrative graphics, including figures and tables to summarize information and describe systems, processes, and spatial relationships.



### **1.13 WAC 463-42-115 General – Specific Contents and Applicability**

*It is recognized that not all sections of these guidelines apply equally to all proposed energy facilities. If the applicant deems a particular section to be totally inapplicable the applicant must justify such conclusion in response to said section. The applicant must address all sections of this chapter and must substantially comply with each section, show it does not apply or secure a waiver from the council. Information submitted by the applicant shall be accompanied by a certification by applicant that all EFSEC application requirements have been reviewed, the data have been prepared by qualified professional personnel, and the application is substantially complete.*

As explained below, BP requests waivers from the following sections:

- WAC 463-42-165
- WAC 463-42-185
- WAC 463-42-362(1) (1)
- WAC 463-42-435
- WAC 463-42-625

The cover letter includes statements that all of the EFSEC requirements including recommendations contained in the PSS have been reviewed, the ASC has been prepared by qualified personnel, and the ASC is substantially complete.

### **1.14 WAC 463-42-125 Proposal – Site Description**

*The application shall contain a description of the proposed site indicating its location, prominent geographic features, typical geological and climatological characteristics, and other information necessary to provide a general understanding of all sites involved, including county or regional land use plans and zoning ordinances.*

BP is proposing to build an approximately 720-megawatt (MW) natural gas-fired combined-cycle combustion turbine cogeneration facility on approximately 33.17 acres of land adjacent to the Refinery. The Project also includes the construction of a new 230-kilovolt (kV) transmission line that will connect the facility to the existing 230-kV transmission line, which is owned and operated by Bonneville Power Administration (BPA) and is located approximately one mile east of the Refinery. The new transmission line will be entirely on BP property and was previously permitted under a separate action. A new transmission line will also be constructed to connect the Cogeneration Project to the Refinery. This transmission line will also be constructed entirely on BP-owned property.

A natural gas pipeline currently provides gas to the Refinery, but a gas compressor station will be constructed at the site to increase pipeline delivery pressure. If additional gas is required, it will be obtained from a third-party pipeline. All other infrastructure is available at the Refinery [site](#), including water supply and a wastewater treatment system.

[The Whatcom Public Utility District No. 1 \(PUD\) will provide industrial water to the Cogeneration Project from recycled cooling water used at the nearby Alcoa aluminum smelter. The agreement with Whatcom PUD and Alcoa has enabled BP to alter the design of the Cogeneration Project from an air-cooled condenser configuration to a water-cooled condenser without require the withdrawal of additional fresh water from](#)



the Nooksack River. On average, the amount of recycled cooling water available from Alcoa will exceed the Cogeneration Project's water use by 484 to 556 gpm. The additional recycled water would be used at the Refinery, reducing the need to withdraw fresh water from the Nooksack River.

-Stormwater will be directed from the site northward into a ~~retention area across detention pond on site and then routed under~~ Grandview Road then dispersed into a wetland mitigation area that will provide habitat for aquatic and terrestrial resources.

The Project site is located in the Heavy Impact Industrial area on Cherry Point, approximately 15 miles north of Bellingham and 7 miles south of Blaine, Washington. Grandview Road (SR 548) provides the main vehicle access to the project site and the Refinery. Grandview Road intersects Interstate-5 (I-5) approximately 6 miles to the east of the site. A Burlington Northern-Santa Fe (BNSF) railway line borders the eastern edge of the Refinery property. The site has access by barge.

The Project site is relatively flat with no dominant topographical features. The most notable features in the vicinity of the project include Terrell Creek, Point Whitehorn, and Birch Bay. To the north of the site, Terrell Creek flows through a wooded area and creates a narrow, shallow ravine as it drains westerly into Birch Bay. Point Whitehorn is a high bluff to the west of the site that overlooks Birch Bay, which is part of the coastline along the Strait of Georgia.

The entire Cogeneration Project, including the new transmission line, will be located on BP-owned property, and will be entirely contained in the Major Industrial Urban Growth Area/ Port Industrial as defined in the Whatcom County Comprehensive Plan, issued May 20, 1997. The entire area is zoned Heavy Impact Industrial.

More information regarding the Cogeneration Project site is found in Part II, Chapter 2 and Part III, Appendix D (Project Description).

### **1.15 WAC 463-42-135 Proposal – Legal Descriptions and Ownership Interests**

- (1) Principal facility: The application shall contain a legal description of the site to be certified and shall identify the applicants and all non-private ownership interests in such land.*
- (2) Ancillary facilities: For those facilities described in RCW 80.50.020 (6) and (7) the application shall contain the legal metes and bounds description of the preferred centerline of the corridor necessary to construct and operate the facility contained therein, the width of the corridor, or variations in width between survey stations if appropriate, and shall identify the applicant's and others ownership interests in lands over which the preferred centerline is described and of those lands lying equidistant for 1/4 mile either side of such center line.*

The Cogeneration Project site, including the transmission line and other ancillary facilities lie within the Northwest Quarter of Section 8, Township 39 North, Range 1 East, W.M. in Whatcom County. BP currently owns the entire project site. A more detailed legal description with the legal metes and bounds is included in Part III, Appendix C, Legal Descriptions and Ownership. BP owns all of the property located within approximately 0.5-mile of the site.

## **1.16 WAC 463-42-145 Proposal – Construction on Site**

*The applicant shall describe the characteristics of the construction to occur at the proposed site including the type, size, and cost of the facility; description of major components and such information as will acquaint the council with the significant features of the proposed project.*

Part II, Chapter 2 and Part III, Appendix D (Project Description) provide detailed information about construction on the site. The following briefly summarizes that information.

The Cogeneration Project will provide steam and electricity to BP's Refinery and will generate additional electricity to be transmitted on the Northwest regional electric grid. The proposed Cogeneration Project will consist of several major plant components and ancillary facilities. The major plant components include the gas and steam turbines, generators, and heat dissipation system. Ancillary facilities are the electrical switchyard, 230-kV transmission line,<sup>1</sup> and the natural gas compression station. All project facilities, including the 230-kV transmission line to be owned, operated, and maintained by BPA, will be located on land owned by BP. Total estimated capital cost for construction of the facility, [subject to variation as the project proceeds through more detailed design](#), is approximately \$580 million.

### **1.16.1 Primary Facility Components**

The Cogeneration Project will utilize combined cycle combustion turbine technology. The power block will consist of three combustion gas turbines (CGTs), each exhausting into individual heat recovery steam generators (HRSGs) that will direct steam to one steam turbine generator (STG). The proposed configuration will generate approximately 720 MW of electrical power. See Figure 1-1 for a plant site layout.

Other key facilities onsite include [air-cooled condensers-a cooling tower](#) for heat dissipation, natural gas compressors, a 230-kV BPA switchyard and transmission line, a 69-kV substation to supply power to the refinery, control and administration buildings, water treatment facilities, water, and chemical storage facilities, and gas-metering station(s).

The three access points to the Project site will be from 1) a new road roughly 350 feet long to be constructed from Grandview Road, 2) across BP property east to the project site from Blaine Road, and 3) across BP property to the south side of the project site from Brown Road. See Part III, Appendix I, (Transportation) for additional information.

### **1.16.2 Cogeneration and Refinery Integration**

The Cogeneration Project will be integrated with the Refinery to increase the efficiency of power production, and to take advantage of existing infrastructure.

Of the 720 MW of electricity produced by the Cogeneration Facility, approximately 85 MW will be delivered to the Refinery, leaving approximately 635 MW available for the northwest electrical grid. The Cogeneration Project will enable the Refinery to eliminate

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<sup>1</sup> The transmission line corridor has been previously permitted under a separate action.

its reliance on third-party sources of electricity and avoid using temporary generation such as the diesel generators installed by BP in 2000, and the natural gas-fired generators installed on the site during 2001. The Cogeneration Facility will also provide steam to the Refinery, which will allow the Refinery to decommission boilers that are currently used to generate steam required for refining operations.

Cogeneration offers significant economic and environmental advantages over stand-alone power plant configurations because it uses natural gas more efficiently. The Cogeneration Project will operate at approximately ~~65.63~~63% thermal efficiency. In contrast, a stand-alone power plant using the same equipment would operate at only 53% efficiency. The increased efficiency of the Cogeneration Project results from the use of residual steam energy that would otherwise be discarded, or not used as efficiently in a stand-alone merchant plant configuration. With the Cogeneration Project providing steam to the Refinery, the Refinery will ~~have reduced no longer the~~ need to burn additional fuels for the sole purpose of generating steam. The net result is a lower overall cost of producing electricity and steam for refining operations, ~~fewer overall with a reduction in expected criteria pollutant~~ emissions, and lower natural gas consumption ~~for Refinery energy needs~~. (Baird, Stuart, 1993)

The Cogeneration Project will utilize the following infrastructure ~~from located on~~ the Refinery site:

- Natural gas supply line;
- Water supply line for process and make-up requirements, fire suppression, and potable consumption;
- Wastewater treatment system;
- Sanitary sewer system, which ultimately transfers sanitary waste to the Birch Bay Water and Sewer District; and
- Extensive fire response, emergency medical services, hazardous material response, ~~and onsite policing/ security system~~.

Because this infrastructure already exists, the Cogeneration Project avoids the off-site environmental impacts and community disruption that would otherwise be associated with constructing this infrastructure.

The location of the Project minimizes the potential impact on land resources. Key spatial features of the Cogeneration Project are highlighted below:

- The Project site is zoned for Heavy Impact Industrial use, consistent with Whatcom County Land Use plans;
- The Project is located entirely on BP-owned property, approximately 0.5-mile from the nearest neighbor (Chemco Industries);
- There is a large vegetated buffer zone between the project site and public roads, thereby minimizing potential visual and noise impacts; and
- Transmission line access exists within 0.8 miles of the Cogeneration Project site, and is located entirely within BP-owned property. A single contingency analysis study performed by Bonneville Power Administration shows that upon the loss of one of the 230 kV transmission lines from the Custer substation, assuming certain combinations of loads and generation and assuming the ambient temperature exceeds 68° F, the existing 230 kV transmission lines would exceed

BPA's operating limit of 100° C by up to 8%. One option if these events occurred is to implement a remedial action scheme to shed load or generation. BP prefers this option, as no new high voltage transmission lines are required across public or other private lands to provide for this contingency situation.

Significant efforts to protect the environment have also been incorporated into the overall design of the Cogeneration Project, including:

- ☐ ~~Selection of air-cooling technology, rather than a water-cooling technology. Although the air-cooling technology costs approximately \$20 million more to construct than a comparable water-cooled power plant, this approach significantly reduces fresh water consumption, and wastewater discharges relative to a water-cooled plant using fresh water. Combined with the proposed water reuse project whereby HRSG blowdown water would be routed to the Refinery as make up water, there will be a net increase in fresh water consumption of only 40 gpm.~~
- Selection of water-cooling technology that will use recycled industrial water to conserve fresh water from the Nooksack River. By recycling non-contact cooling water, the Alcoa smelter, the Refinery, and the Cogeneration Project will use less water than the Alcoa smelter and the Refinery currently use.
- Wetland mitigation and enhancement opportunities exist on BP-owned property north of Grandview Road within the same watershed and ecosystem. BP ~~is in the process of developing~~ has developed a mitigation project that will provide highly productive and diverse habitats for aquatic and terrestrial resources, combined with improved hydrological features for buffering stormwater flows than currently exist with the marginal quality wetlands located on the project site.
- The stormwater management system will retain the surface water in the same watershed and will use the existing drainage system.
- Modifications at the Refinery are expected to significantly reduce air emissions in light of steam provided to the Refinery from the Cogeneration Project.

### **1.17 WAC 463-42-155 Proposal - Electrical Transmission System**

*The applicant shall discuss the criteria utilized as well as describe the routing, the conceptual design, and the construction schedule for all facilities identified in RCW 80.50.020 (6) and (7) which are proposed to be constructed.*

Electricity generated by the Project will be routed to a new 230-kV switchyard to be constructed east of the gas turbine and steam turbine generators. A new 230-kV transmission line will be constructed from the switchyard east through a previously permitted transmission corridor on BP property to interconnect with an existing BPA 230-kV transmission line. Ownership of the switchyard and new 230-kV transmission line will be subject to the terms of the interconnection agreement with BPA. Figure 1-2 shows the routing of the proposed transmission line.

BPA performed a single contingency analysis for the Cogeneration Project and Refinery load along with the potential Alcoa load on their two existing 230 kV transmission lines. This analysis determines whether each line by itself can carry all combinations of loads and generation possible in this system should the other transmission line fail.

This analysis showed that under certain combinations of electrical loads, and when certain sections of transmission line are lost, one or more portions of the remaining line could exceed its thermal operating limit of 100 degrees Celsius by up to 8%. Whether or not this occurs depends upon the ambient temperature at the time of the line loss.

At or below about 68°F, the remaining line always has sufficient capacity; above 68°F, the line begins to exceed its temperature limit. This effect increases as ambient temperature increases. At the maximum expected ambient temperature of 95°F and the worst contingency case, the overload would be about 40 MW, or 8% of the allowable line capacity. The ambient temperature at Cherry Point exceeds 68°F about 8% of the time.

While this combination of events is very unlikely, it must be provided for in the system design. There are three options to remedy this situation:

- 1) Install a remedial action scheme to reduce load or generation on the 230 kV system when the combination of events described above occurs. This option would require no changes to the 230 kV lines or towers, but would require the agreement of the Refinery, Alcoa and the Cogeneration Project.
- 2) Install a second transmission line inside the existing westernmost 230 kV line corridor leading from the Refinery to the Custer substation to “double up” the existing transmission line along this segment. The existing transmission towers in this roughly 4-mile long segment are not strong enough to carry a second circuit so the existing towers would be replaced with new stronger monopole or lattice towers. The towers would likely be replaced one-at-a-time by temporarily supporting the existing wires while each tower was replaced. Some foundation work would likely be required to accommodate the new towers; therefore some impact to land within the existing right-of-way is anticipated for this option. BPA would also be required to add two breakers to the Custer substation ring buss to accommodate this new line. Under this option, no remedial action scheme would be required to reduce load or generation should any single contingency occur.
- 3) Replace the existing 230 kV transmission lines with higher capacity lines. This option would not require new towers if a wire type is found which provides the required capacity with the same weight as the existing wire, but otherwise tower modifications or new towers may be required. Under this option, no remedial action scheme would be required. At the time of this ASC amendment, some wires have been evaluated but a suitable wire type has not been found.

BP strongly prefers the remedial action scheme option, as this solution does not require changes to the existing transmission lines and towers.

On the Refinery site, ~~Two~~ two transformers in the 230-kV switchyard would step down power required by the refinery to ~~69 kV~~ an intermediate voltage substation on Refinery property for connection to the existing refinery substations. While this intermediate voltage may be 69 kV or 115 kV, the intermediate voltage substation and its components are referred to as “69 kV” substation in this document and other sections. The voltage of this system will be determined during the project detailed design phase.

~~Two-Three~~ new ~~69 kV underground-overhead lines and~~ cables would be routed west from the switchyard along the southern edge of the Cogeneration Project site. At the

southwest corner of the site, the cables would be routed ~~to~~ in parallel with or on the overhead pipe rack which supports piping running from the Cogeneration Project to the Refinery.

BP has obtained a 404 permit from the U.S. Army Corps of Engineers for wetlands impacts of siting the transmission line corridor, anticipating that it would construct a new transmission line to deliver power from the northwest regional grid to the Refinery. The Cogeneration Project proposes to utilize this corridor because it is located on BP property, it provides a short and direct route to the existing BPA transmission lines, and the wetlands impacts in this corridor have already been permitted and mitigated. The transmission line will be constructed to the design and engineering specifications required by BPA.

More information on the transmission system, schedule for construction and additional information on construction activities related to the transmission line are provided in Part III, Appendix D (Project Description)

### **1.18 WAC 463-42-165 Proposal - Water Supply System**

*The applicant shall describe the location and type of water intakes and associated facilities.*

The proposed Cogeneration Project will not require any new water intakes or associated facilities to withdraw water from surface waters. BP, therefore, requests a waiver from this requirement. Extensive information regarding the facility's water needs and the water supply system is provided in Part III, Appendix F (Water). The following is a brief summary:

The Cogeneration Project will require water for ~~four~~ three purposes: water for cooling, water to make steam for power generation and the Refinery, potable water for employee use, and water for fire suppression. Whatcom County Public Utility District No. 1 (PUD) currently supplies the Refinery with all of its non-potable water requirements. The PUD is permitted to withdraw up to 53.6 million gallons per day (mgpd) of water from the Nooksack River for distribution to six Cherry Point industrial customers (including BP), the City of Ferndale, and 21 irrigation customers. Of this total, BP's Agreement with the PUD provides for the delivery of a maximum of 11 mgpd of water.

The Cogeneration Project will require an average of approximately ~~604 2,244 to 2,316~~ gallons per minute (gpm), which is equal to approximately ~~870,000 3.23 to 3.34 million~~ gallons per day. An average of 4.0 million gallons per day of recycled cooling water will be available from Alcoa. The remaining recycled water will be used by the Refinery, decreasing the need to withdraw fresh water from the Nooksack River. However, because there will be offsetting reductions in water consumption at the Refinery, the Cogeneration Project will only require BP to increase its average water use by approximately 40 gpm. This amount is well within the total amount the PUD has agreed to provide to BP.

Aside from the relatively minor changes required to receive recycled water from the Alcoa smelter, the PUD will not have to change any of its existing facilities to provide water to the Cogeneration Project. The only structural changes required will be the construction of a new 16" water supply line will be constructed from the Refinery's freshwater reservoir to PUD's water line on the Refinery site to provide industrial water to the Cogeneration Project.



### **1.19 WAC 463-42-175 Proposal – System of Heat Dissipation**

*The applicant shall describe both the proposed and alternative systems for heat dissipation from the proposed facilities.*

~~The proposed and alternative systems for heat dissipation are addressed in Part II, Section 2.2.2, and Part III, Appendix D (Project Description). A brief summary is provided here.~~

~~The ASC considers four types of cooling systems: (1) once-through water cooling, (2) wet cooling, (3) wet-dry cooling, and (4) dry cooling. At this time, BP proposes to use a dry or air-cooled-water-cooled system, utilizing recycled industrial water, which would conserve to reduce the use of fresh water. The proposed and alternative systems for heat dissipation are addressed in Part II, Section 2.2.2, and Part III, Appendix D (Project Description). and reduce the volume of wastewater discharged from the facility. BP is also considering the possibility of using reclaimed industrial wastewater in a wet cooling system. However, such an alternative would require an agreement with a third party to provide appropriate wastewater. If an agreement can be reached with a third party, BP may pursue an alternative wet cooling system~~

~~Water used for industrial purposes within the Cogeneration Project would be supplied by Whatcom County Public Utility District (PUD), from recycled cooling water used at the nearby Alcoa aluminum smelter. On average the Cogeneration Project would require 2,244 to 2,316 gpm of industrial water, and 2,780 gpm of recycled water will be available. The remaining recycled water will be used by the Refinery, resulting in an average reduction of 484 to 556 gpm of fresh water needed to be withdrawn from the Nooksack River.~~

~~In an air-cooled system, an air-cooled condenser (ACC) receives exhaust steam from the low pressure (LP) section of the steam turbine generator (STG) and condenses it to boiler feedwater to return to the HRSGs. The ACC consists of multiple modules of finned tubes arranged in an “A” frame configuration with fans and electric motor drives. Each module will condense exhaust steam from the STG by exchanging heat with ambient air. The ACC is designed to operate under full vacuum. Steam enters the tubes at the peak of the “A” and is cooled and condensed as it flows downward into a hotwell tank. The condensate is then pumped back into the HRSGs. The ACC minimizes the water make-up requirements while maintaining cycle efficiency. ACC fan design and placement minimizes noise emitted to the surrounding area.~~

### **1.20 WAC 463-42-185 Proposal – Characteristics of Aquatic Discharge Systems**

*Where discharges into a watercourse are involved, the applicant shall identify outfall configurations and show proposed locations.*

The Cogeneration Project will not discharge wastewater directly into any watercourses (including creeks, lakes, wetlands, ditches, or the marine environment), or storm drains, and it will not require any new outfalls. This requirement, therefore, does not apply and BP requests a waiver from it. However, for informational purposes, the Project's waste water system and the discharges are briefly described below. More detail is provided in Part III, Appendix F (Water).



Wastewater will be generated from:

- Sanitary ~~wastewater~~waste collection;
- ☐ ~~Blowdown from the steam circuit;~~
- Treatment of raw water to produce high quality boiler feedwater (BFW) and Refinery return condensate treatment; and
- Collection of water and/or other minor drainage from various types of equipment~~Stormwater runoff from the Cogeneration Project site; and~~
- Cooling tower blowdown.

Sanitary wastes will be discharged to the Birch Bay Water and Sewer District's (District) treatment system in accordance with the terms and conditions of an Agreement between BP and the District. Sanitary wastes are expected to be 1-~~2~~5 gpm. The District has confirmed that it has the capacity to accommodate the incremental combined sewage loading from the Refinery and the proposed Cogeneration Project.

Blowdown from the steam circuit and cooling tower and wastewater from the water purification process will be discharged to the Refinery wastewater treatment system. On average, approximately ~~50~~ 190 gpm of wastewater would be discharged from the Cogeneration Project to the Refinery treatment system assuming 15 cycles of concentration in the cooling tower. Once treated, Refinery wastewater flows into the Strait of Georgia through an effluent diffuser located at the dock. The discharge point is approximately 0.5 mile offshore in approximately 65 feet of water. The water is continually sampled and effluent is not discharged unless testing verifies that all National Pollution Discharge Elimination System (NPDES) permit requirements are met.

No modification of the effluent limitations in the Refinery's NPDES permit will be necessary, but prior to operation of the Cogeneration Facility, the Refinery will have to have its permit revised to reflect the addition of these waste streams. The addition of the Cogeneration Project water provides an ± 8.1% increase to the average Refinery stream flow rate, and has almost no effect on properties regulated under the NPDES permit.

## **1.21 WAC 463-42-195 Proposal – Wastewater Treatment**

*The applicant shall describe each wastewater source associated with the facility and for each source, the applicability of all known, available, and reasonable methods of wastewater control and treatment to ensure it meets current waste discharge and water quality regulations. Where wastewater control involves collection and retention for recycling and/or resource recovery, the applicant shall show in detail the methods selected, including at least the following information: Waste source(s), average and maximum daily amounts and composition of wastes, storage capacity and duration, and any bypass or overflow facilities to the wastewater treatment system(s) or the receiving waters. Where wastewaters are discharged into receiving waters, the applicant shall provide a detailed description of the proposed treatment system(s), including appropriate flow diagrams and tables showing the sources of all tributary waste streams, their average and maximum daily amounts and composition, individual treatment units and their design criteria, major piping (including all bypasses), and average and maximum daily amounts and composition of effluent(s).*

The Cogeneration Project will have ~~five~~<sup>three</sup> separate wastewater collection systems, as described below:

1. The first system collects wastewater from the cogeneration plant equipment, including ~~the HRSGs, condensate blowdown, cooling tower blowdown~~ (HRSG blowdown water from the Cogeneration Project is recycled into the Project's cooling tower), ~~returned condensate treatment system~~, demineralized water treatment unit, and general plant drains. The pH of the water will be adjusted ~~in the neutralization tank~~, if necessary, prior to being pumped to the refinery wastewater collection system. This system also collects wastewater from equipment areas where water could contact with oil or oily residue, and collects stormwater from selected secondary containment areas. This water will be collected and pumped to the Refinery's wastewater treatment system.

~~2.~~

- ~~2.~~The second system is for sanitary wastewater from toilets, sinks, showers, and other sanitary facilities. The sanitary waste will flow by gravity to the sanitary lift station, which pumps the waste to the Refinery sanitary waste collection system, which in turn, is discharged to the District's treatment plant.

- ~~3.~~The third system collects process wastewater streams from equipment areas where contact oil or oily residue is possible, and stormwater collected in storage tank secondary containment areas. ~~This water would be collected and drained or pumped to the Refinery's existing wastewater treatment system.~~

- ~~4.~~~~3.~~ The ~~fourth~~<sup>third</sup> system is for stormwater that is collected from areas other than secondary containment areas. Stormwater runoff from land surrounding the project site will be routed around the site using bioswales. Stormwater runoff from the project site itself will be collected and directed to an oil/water separator to ensure the water is clean, then drained to a ~~rd~~etention area ~~north~~<sup>south</sup> of Grandview Road to allow suspended silt to settle. The clarified stormwater then flows into wetland mitigation areas.

This system keeps almost all the stormwater from the project site and surrounding land within the Terrell Creek watershed, allowing it to maintain the hydrological regime needed to support aquatic and terrestrial habitat in the wetland mitigation areas.

- ~~5.~~The fifth system involves the reuse and recycling of ~~at the Refinery.~~

More detailed information on the wastewater system is provided in Part III, Appendix D (Project Description) and Appendix F (Water).

## 1.22 463-42-205 Proposal – Spillage Prevention and Control

*The applicant shall describe all spillage prevention and control measures to be employed regarding accidental and/or unauthorized discharges or emissions, relating such information to specific facilities, including but not limited to locations, amounts, storage duration, mode of handling, and transport.*

Diesel fuel, gasoline, motor oil, hydraulic fluid, brake fluid and anti-freeze will be used during construction of the Cogeneration Project. The Engineering, Procurement, and Construction (EPC) contractor will be responsible for implementing and maintaining spill control measures and training all construction personnel and subcontractors in spill avoidance and emergency preparedness in compliance with applicable regulations,

[BP's the Project's](#) policies and procedures, and best management practices. The EPC contractor's minimum requirements will include, but will not be limited to:

- Construction equipment refueling will be closely supervised to avoid leaks or releases.
- Spill cleanup supplies will be kept onsite for the duration of the construction schedule.
- If a spill or leak occurs during refueling, it will be properly cleaned-up by the EPC contractor and reported to [BP's the](#) Project Environmental Manager.
- If fuel tanks are used during construction, the fuel tanks will be located within a secondary containment with an oil-proof liner sized to contain the single largest tank volume plus an adequate freeboard to account for precipitation, consistent with applicable federal and state legislation, regulations, codes, and standards.
- Lubricating oil temporarily stored on site in barrels will be stored in a secondary containment area to contain any spillage or in warehouses.

Hazardous materials, such as paints, coatings, adhesives, and solvents, used during construction will be stored in a locked utility shed or a secured fenced area that conform to federal Occupational Safety and Health Act (OSHA) standards.

During operation of the Cogeneration Project, all spill prevention and control requirements will be ~~integrated into~~ managed using a plan similar to the Refinery's spill prevention and control plan, [adapted for the Cogeneration Project](#). The general requirements for storage facilities are summarized below.

The transformers, the anhydrous ammonia tank, the caustic tank and acid tank will have secondary containment, appropriately lined, that will hold at least the total volume of the facility or tank, plus adequate freeboard to account for precipitation. -The containment surrounding the ammonia tank will hold at least 150% of its working volume. As indicated above, secondary containment facilities will be designed, constructed, and maintained in accordance with applicable federal and state legislation, regulations, codes, and/or standards.

Other chemicals, such as oxygen scavenger, neutralizing amine, and phosphate, will be stored indoors and [/or](#) contained within a curbed area sufficient to contain the largest storage tank.

In addition to these precautions, the Cogeneration Project will have a separate system to collect wastewater that could have potentially contacted oil or oil residue. Water drainage from lubricating oil coolers and rainwater or washdown runoff from within curbed areas will be collected in this system and pumped or drained to the existing Refinery water treatment system.

Additional information is provided in Part III, Appendix J (Emergency and Security Plans).

### **1.23 WAC 463-42-215 Proposal – Surface Water Runoff**

*The applicant shall describe how surface-water runoff and erosion are to be controlled during construction and operation to assure compliance with state water quality standards.*

Surface water runoff (stormwater) during construction and operation of the Cogeneration Project will be carefully managed. BP has designed a system for stormwater management that assures water quality standards are maintained, and that the stormwater remains within the natural drainage pattern of the Terrell Creek watershed. Stormwater will also be used to enhance the productivity and diversity of wetlands.

Stormwater will be routed to the perimeter of the Project site and collected along with water from offsite drainage into vegetated drainage bio-swales that provide some retention and buffering of flows, thereby regulating flow velocities and maintaining summer base flows, while improving water quality. Stormwater potentially containing contaminants, such as oils and greases originating from parking lots, will be routed through oil/water separators prior to discharging into the vegetated bio-swales.

The stormwater will be ~~conveyed by gravity to a collection area near the northwest corner of the site, where it will be~~ discharged into ~~detention ponds onsite and then routed a culvert under Grandview Road, and then into a large detention pond discharged into wetland mitigation areas.~~ The detention pond will be sized in accordance with Department of Ecology guidelines to control discharge rates and to allow suspended solids to settle out ~~prior to being discharged into another bioswale that enlarges into an enhanced wetland area.~~

Additional information on stormwater management is provided in Part III, Appendix F (Water).

### **1.24 WAC 463-42-225 Proposal - Emission Control**

*The applicant shall demonstrate that the highest and best practicable treatment for control of emissions will be utilized in facility construction and operation. In the case of fossil fuel power plants, petroleum refineries, and transmission and associated facilities, the applicant should deal with products containing sulfur, NOx, volatile organics, CO, CO<sub>2</sub>, aldehydes, particulates, and any other emissions subject to regulation by local, state, or federal agencies. In the case of a nuclear-fueled plant, the applicant should deal with optional plant designs as these may relate to gaseous emissions.*

A complete Best Available Control Technology (BACT) analysis and Prevention of Significant Deterioration (PSD) permit application is included in Part III, Appendix E (Air Quality). CO<sub>2</sub> and other greenhouse gas emissions are addressed in Part II, Section 3.2.

## **1.25 WAC 463-42-235 Proposal – Construction and Operation Activities**

*The applicant shall: Provide the proposed construction schedule, identify the major milestones, and describe activity levels versus time in terms of craft and noncraft employment; and describe the proposed operational employment levels.*

### **1.25.1 Project Schedule**

Engineering and construction of the Cogeneration Project, including making the necessary changes to the Refinery to accommodate the power and steam from the facility, will be accomplished over an approximate 5-year period that began in mid-2001. The schedule has the following key milestones:

- Development engineering initiated in July 2001
- ASC submitted June, 2002
- ~~Site Certification granted by the end of 2002.~~
- Construction would be initiated after issuance of the permit. The construction schedule shown in this ASC assumes a February 2004 construction start date, ~~but assuming the required approvals are obtained, BP wishes to move the construction start date up to the end of the first quarter of 2003.~~
- Construction would take about ~~23-27~~ months, with commissioning starting about ~~19-22~~ months after start of construction.
- The construction schedule in this ASC shows Commercialization ~~at the end of 2005~~ in early 2006. ~~If construction would begin at the end of the first quarter of 2003, Commercialization could occur in early 2005.~~

~~If the Site Certification is obtained after the end of the first quarter of 2003, then the construction schedule would have to be adjusted accordingly.~~

### **1.25.2 Construction Activity**

BP retained Duke Fluor Daniel to provide preliminary design information for the Cogeneration Project. BP will hire an Engineering, Procurement and Construction (EPC) contractor to complete the final design, procure, construct, and commission the Cogeneration Project. The EPC contractor will be responsible for constructing the project within the applicable guidelines, regulations and Site Certification Agreement requirements. The EPC contractor will employ direct-hire craft labor as well as subcontractors for certain specialty work, as required.

The preliminary construction plan is to operate on a single-shift basis with spot overtime as necessary to maintain specific scheduling milestones. A second shift may be added as necessary to accommodate a particular construction activity or to meet a critical milestone. At present, the final commissioning phase is the only activity prior to Commercialization when routine around-the-clock staffing is anticipated.

Construction activities are described in greater detail in Part II, Chapter 2 and Part III, Appendix D (Project Description).

### 1.25.3 Construction Workforce

The construction workforce will consist of both craft and noncraft workers and will also include a number of engineers, supervisory and field personnel. The estimated average number of construction workers by quarter is shown below in Table 1-4.

More detailed information is provided in Part III, Appendix L (Population, Housing, and Economics).

TABLE 1-4

Average Quarterly Workforce by Craft/Trade for the Cogeneration Project

Craft/Trade	1 <sup>st</sup> Qtr 2004	2 <sup>nd</sup> Qtr 2004	3 <sup>rd</sup> Qtr 2004	4 <sup>th</sup> Qtr 2004	1 <sup>st</sup> Qtr 2005	2 <sup>nd</sup> Qtr 2005	3 <sup>rd</sup> Qtr 2005	4 <sup>th</sup> Qtr 2005
Craft <sup>2</sup>	1	55	196	472	546	420	223	31
Non-Craft	7	26	26	35	26	23	21	7
Supervisory	2	10	9	12	14	14	10	2
Engineers	6	35	21	31	33	26	15	3
Field Staff	4	32	44	47	56	55	46	20
Natural Gas <sup>3</sup>	0	0	8	36	30	23	0	0
Total Qtr Average	20	158	304	633	705	561	315	63

### 1.25.4 Operation Workforce

When operational, the Cogeneration Project is expected to employ 30 people. The facility will be staffed 24 hours per day, 7 days per week. More information is provided in Part II, Chapter 2 and Part III, Appendix D.

## 1.26 WAC 463-42-245 Proposal – Construction Management

*The applicant shall describe the organizational structure including the management of project quality and environmental functions.*

Construction management for the Cogeneration Project will be based on a two-tier system. The first tier will be the [BP](#)-Project Manager with organizational support including administration, engineering, procurement and contracts, and project control.

The second tier will be a Site Manger employed by the EPC contractor who reports directly to the [BP](#)-Project Manager. The Site Manager has direct control and responsibility for managing all aspects of construction including field engineering, procurement of materials, labor, cost control, material management, quality control, and environmental health and safety.

There will also be an Environmental Health and Safety Manager, who will have responsibility for environmental compliance, safety and environmental audits, liaison

<sup>2</sup> Includes, boilermakers, carpenters, electricians, ironworkers, pipefitters, painter/insulation installers, bricklayer/masons, and millwrights.

<sup>3</sup> The workforce for the natural gas connection, metering station, and compressions station will comprise primarily of mechanical, civil, electrical, and field staff personnel.



with regulatory agencies, environmental reporting, and site emergency response requirements.

Additional information on the construction management structure can be found in Part III, Appendix D (Project Description).

### **1.27 WAC 463-42-255 Proposal - Construction Methodology**

*The applicant shall describe in detail the construction procedures, including major equipment, proposed for any construction activity within watercourses, wetlands and other sensitive areas.*

Detailed information regarding construction methodology is provided in Part II, Chapter 2 and Part III, Appendix D (Project Description).

### **1.28 WAC 463-42-265 Proposal – Protection From Natural Hazards**

*The applicant shall describe the means employed for protection of the facility from earthquakes, volcanic eruption, flood, tsunami, storms, avalanche or landslides, and other major natural disruptive occurrences.*

The project site is not subject to major natural disruptive occurrences. As part of developing this ASC, Golder and its engineering and consulting team have evaluated the potential for natural hazards impacting the project. Natural hazards that could potentially affect the proposed project include seismic or volcanic activity and various storm-related occurrences. This information is summarized below. Additional information is included in Part III, Appendix G (Earth), and Appendix F (Water).

#### **1.28.1 Seismic Hazards**

The Cherry Point area (as well as all of western Washington) is within Seismic Zone 3, as stated in the Uniform Building Code. Topographic amplification of earthquake shaking is not expected at the Cogeneration Project site because of its low relief. In addition, preliminary analysis indicates that the potential for liquefaction at the site is low. Other vulnerabilities of the site are also determined to be very low, based on historic occurrences and site location characteristics.

The Cogeneration Project will be sited and constructed in accordance with all seismic codes, construction techniques, requirements, ordinances, and other applicable standards relevant to the nature and purpose of the facility. Adequate measures will be provided during design and construction activities to fully address potential site issues and physical constraints, including foreseeable natural occurrences. Additional information is provided in Part III, Appendix G (Earth).

#### **1.28.2 Flooding Hazards**

The proposed Cogeneration Project and all associated components are located outside of the 5-, 50-, 100-, and 500-year floodplains. Site soils are fairly impervious, topography is relatively flat, and the vegetation well established. Based on these factors, there is a very low risk for the potential for flooding hazards to occur on site.



### **1.28.3 Volcanic Hazards**

An evaluation of volcanic hazards is included in Part III, Appendix G (Earth). Hazards from volcanic activity are a very low risk and limited to tephra fall. The general term tephra is used by volcanologists for airborne volcanic ejecta of any size (USGS) and refers to what most lay people would call falling volcanic ash.<sup>4</sup> The only known volcanoes that could potentially impact the Cogeneration Project site are Mt. Baker and Glacier Peak. The annual probability of 10 centimeters or more of tephra impacting the site is less than 0.01 percent (Gardner and Others, 1995). See Appendix G for additional information.

### **1.29 WAC 463-42-275 Proposal – Security Concerns**

*The applicant shall describe the means employed for protection of the facility from sabotage, vandalism and other security threats.*

Security issues are addressed briefly below and discussed in more detail in Part II, and Part III, Appendix D (Project Description) and Appendix J (Emergency and Security Plans).

#### **1.29.1 Security During Construction**

Final site security plans will be developed prior to mobilization. Security measures to control and limit access to the job site will be implemented at initial mobilization.

The site, EPC contractor's construction offices, parking area and laydown area will be secured by a 8-foot chain-link fence with barbed wire on top. Site access will be controlled for personnel and traffic. A bonded outside security services agency will supply manpower as deemed necessary to provide 24-hour surveillance. Security assignments will include traffic control for personnel access/egress, gate monitoring for all deliveries, random toolbox checks for material/tool control, after-hours security, and fire watch.

Temporary lighting will be provided to ensure safety and security of the site and laydown areas. Lighting will be provided at strategic locations using light fixtures attached to buildings, fences, and poles.

#### **1.29.2 Security During Plant Operation**

Security for the Cogeneration Project will be very high and coordinated with local, state, and federal law authorities. Security fencing and perimeter lighting will be maintained. Access will be controlled and monitored 24 hours a day.

### **1.30 WAC 463-42-285 Proposal – Study Schedules**

*The applicant shall furnish a brief description of all present or projected schedules for additional environmental studies. The studies descriptions should outline their scope and indicate projected completion dates.*

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<sup>4</sup> [http://vulcan.wr.usgs.gov/Glossary/volcano\\_terminology.html](http://vulcan.wr.usgs.gov/Glossary/volcano_terminology.html)

~~Two studies are either currently underway or will be conducted and completed at a later date. These studies are briefly described below. More information is provided in Part III, Appendix N (Study Schedules)~~

### ~~1.30.1 Cultural and Historical Study~~

~~BP has contracted with the Lummi Tribe to conduct a complete archaeological study on areas that would be impacted by construction of the Cogeneration Project. These areas include, the plant site, laydown areas, and other potentially impacted areas. An archeological study has been completed for the transmission line maintenance access roads and tower pads. This study shows no archeological findings of significance.~~

### ~~1.30.1 Geotechnical Investigation~~

During the detailed design of the Cogeneration Project, BP will commission a geotechnical investigation to provide input into the design and configuration of foundations and seismic requirements for the proposed building and structures.

## **1.31 WAC 463-42-295 Proposal – Potential For Future Activities at Site**

*The applicant shall describe the potential for any future additions, expansions, or further activities that might be undertaken by the applicant on or contiguous to the proposed site.*

BP does not anticipate any future additions, expansions, or other activities at the Cogeneration Project site. BP owns all the land contiguous to the site, and in the future, additional construction activities may be undertaken at the Refinery. These activities would not be directly related to the management or operation of the Cogeneration Project.

## **1.32 WAC 463-42-302 Natural Environment – Earth**

*The applicant shall provide detailed descriptions of the existing environment, project impacts, and mitigation measures for the following:*

- (1) Geology - The applicant shall include the results of a comprehensive geologic survey showing conditions at the site, the nature of foundation materials, and potential seismic activities.*
- (2) Soils - The applicant shall describe all procedures to be utilized to minimize erosion and other adverse consequences during the removal of vegetation, excavation of borrow pits, foundations and trenches, disposal of surplus materials, and construction of earth fills. The location of such activities shall be described and the quantities of material shall be indicated.*
- (3) Topography - The applicant shall include contour maps showing the original topography and any changes likely to occur as a result of energy facility construction and related activities. Contour maps showing proposed shoreline or channel changes shall also be furnished.*

- (4) Unique physical features - The applicant shall list any unusual or unique geologic or physical features in the project area or areas potentially affected by the project.*
- (5) Erosion/enlargement of land area (accretion) - The applicant shall identify any potential for erosion, deposition, or change of any land surface, shoreline, beach, or submarine area due to construction activities, placement of permanent or temporary structures, or changes in drainage resulting from construction or placement of facilities associated with construction or operation of the proposed energy project.*

The Application contains detailed information regarding these issues in Part II, Chapter 2, and Part III, Appendix G (Earth). A summary of that information is provided here.

### **1.32.1 Geology**

An evaluation of geological conditions in the vicinity of the Cogeneration Project indicates that the site is well suited for the construction of a large industrial facility and that there would be no significant impacts related to the geology of the site.

The surface geological conditions at the site are characterized by Quaternary glacial and nonglacial unconsolidated sediments formed over the last 20,000 years during glacial episodes. The site is covered by sand and gravel identified as Bellingham drift (Qbg) from 0 to 10 feet thick, which is underlain by Bellingham Drift (Qb) from 30 to 70 feet thick, and possibly up to 80 feet in thickness. Deeper strata include various layers of sands, till, undifferentiated unconsolidated sedimentary deposits, and Tertiary and Mesozoic bedrock. More detailed information is presented in Part III, Appendix G (Earth).

### **1.32.2 Soils**

Through an examination of the available literature and previous studies at the site, the onsite soils were characterized; they will not require unusual construction methods or require extraordinary measures to control erosion and sedimentation.

Soils onsite are comprised of silt loam that are very deep and deep, and that are moderately well drained and poorly drained. The majority of the Project site soils are Whitehorn silt loam that are poorly drained. Runoff and erosion is slow in these soils. Hydric soils also exist at the site, principally in association with wetland areas.

The Cogeneration Project will implement Best Management Practices (BMPs) to control erosion and sedimentation. These will include diverting stormwater to avoid contact with the site, silt fences, weed-free straw bales, and temporary settling basins, detention areas, and other measures. Additional information on soils and erosion can be found in Part III, Appendix D (Project Description), Appendix F (Water), and Appendix G (Earth).

### **1.32.3 Topography**

No significant topographic features are present at the Cogeneration Project site. The area is relatively level with slopes ranging from one-half to one percent. Elevations

within the site range from approximately 100 to 120 feet MSL, with the site sloping generally toward the northwest.

#### **1.32.4 Unique Physical Features**

No unique physical features are present at the Cogeneration Project site. Both the site and surrounding areas are typical of other areas within the project vicinity. The principal physical features consist of built environment (industrial facilities) at the site, surrounded by adjacent buffer areas. Wetlands and some wooded areas are present in the vicinity.

#### **1.32.5 Erosion/Enlargement of Land Area**

All of the soils at the proposed Cogeneration Project site and vicinity are described as having no associated erosion hazard. However, to reduce the potential for erosion, BMPs will be developed and implemented during construction and operation. These BMPs will be described in detail in a Stormwater Pollution Prevention Plan (SWPPP). With relatively flat slopes at the site, extensive grading will not be required. Erosion control measures will include constructing stabilized soil berms or employing sandbags to prevent erosion of disturbed areas. Dust and wind erosion will be controlled by applying water to maintain soil moisture. Excavated materials will be reused to the extent possible, and stockpiles would be covered or otherwise protected as required.

### **1.33 WAC 463-42-312 Natural Environment – Air**

*The applicant shall provide detailed descriptions of the affected environment, project impacts, and mitigation measures for the following:*

- (1) Air quality - The applicant shall identify all pertinent air pollution control standards. The application shall contain adequate data showing air quality and meteorological conditions at the site. Meteorological data shall include, at least, adequate information about wind direction patterns, air stability, wind velocity patterns, precipitation, humidity, and temperature. The applicant shall describe the means to be utilized to assure compliance with applicable local, state, and federal air quality and emission standards.*
- (2) Odor - The applicant shall describe for the area affected, all odors caused by construction or operation of the facility, and shall describe how these are to be minimized or eliminated.*
- (3) Climate - The applicant shall describe the extent to which facility operations may cause visible plumes, fogging, misting, icing, or impairment of visibility, and changes in ambient levels caused by all emitted pollutants.*
- (4) Dust - The applicant shall describe for any area affected, all dust sources created by construction or operation of the facility, and shall describe how these are to be minimized or eliminated.*

#### **1.33.1 Air Quality**

BP expects that operation of the Cogeneration Project will result in a net decrease in the total emissions of criteria pollutants from the Cherry Point site. The Cogeneration Project incorporates the best available emission control technology, and by providing

steam to the Refinery, it will enable BP to make several modifications that will reduce Refinery emissions. The Cogeneration Project will comply with all federal and state air quality requirements, and will not substantially affect air quality in the region. Emission control systems, expected emissions, and the effect of Project emissions on ambient air quality are discussed in considerable detail in Part II, section 3.2 and in Part III, Appendix E.

The Cogeneration Project will emit carbon dioxide (CO<sub>2</sub>) from the combustion of natural gas. However, the high efficiency provided by cogeneration enables this facility to generate electricity with lower CO<sub>2</sub> emissions than other existing and proposed gas fired power plants in the region. The Cogeneration Project will also enable BP to shut down existing boilers at the Refinery, which will result in corresponding reductions in greenhouse gas emissions. CO<sub>2</sub> emissions are discussed in greater detail in Part II, section 3.2.

### **1.33.2 Odor**

Odor is addressed in more detail in Part II, Section 3.2. A brief summary is provided here.

The Cogeneration Project site is located within the Cherry Point Heavy Impact Industrial Zone. Industrial operations in the immediate vicinity include: the BP Refinery, the Chemco lumber and shake treating facility, the Praxair carbon dioxide liquefaction plant, and the Puget Sound Energy Point Whitehorn Generating Station. There are no unpleasant odors typically observed in the area surrounding the Project site. It is sometimes possible to detect the smell of freshly cut cedar from the Chemco facility, manure from a nearby dairy farm, or an earthy/musty odor from the Refinery's wastewater treatment system.

Neither the construction nor the operation of the Cogeneration Project are expected to result in any odors. The only odorous chemical emitted from the facility during normal operation is ammonia, which is used in the NO<sub>x</sub> emission control system. However, the [24-hour](#) average ammonia concentrations in the project flue gas will be less than 5 ppm, which is below the odor threshold (Patty's Industrial Hygiene and Toxicology, Vol II, Part A, 4th ed.).

### **1.33.3 Climate**

The general project site area is located in the Puget Sound Lowlands, a generally north-south trending topographical depression feature bordered on the east by the Cascade Mountains and on the west by the Olympic Mountains and Vancouver Island. The cogeneration project site is heavily influenced by marine air that flows easterly from the Pacific Ocean and through the Straits of Georgia and Juan De Fuca.

Precipitation is frequent and averages about 33 inches annually, about 75 percent of which occurs during the months of October through April. Occasionally, cold dry continental air flows from the east-northeast through the Fraser River canyon. It is on those occasions that the temperature at the site can drop into the single digits (below 10 degrees Fahrenheit) although these low temperatures are infrequent. Daily maximum temperatures rarely exceed 85 degrees Fahrenheit.

The distribution of winds at the site indicates that the predominant airflow at the site is southeasterly and east-northeasterly during the winter months and predominantly northwesterly during the summer months. This pattern is heavily influenced by the passage of migratory storm systems from the west.

The Cogeneration facility will ~~not~~ use a cooling tower to cool process water, which will produce therefore, there will not be an occasional visible water vapor plume ~~associated with operations. The visibility of the plume will depend on the ambient temperature and relative humidity. The cooling tower design location will partially mitigate the visibility of the plume. A fogging and icing analysis was performed on the Cogeneration Project cooling tower. This analysis predicted that fogging may occur 2.5 hours in a year, 400 to 1000 meters to the northwest and northeast, which is on the north side of Grandview Road, and would not impact vehicle traffic. The analysis determined that there is no potential for icing. With the absence of a water vapor plume, it is unlikely that the facility will produce enough water vapor to have an appreciable effect on local misting, fogging or icing conditions nor is there likely to be an effect on local relative humidity conditions.~~ The small amount of particulate matter to be emitted from the facility, which can be hygroscopic (have an affinity for water), is not likely to cause a change in climate or degrade local visibility conditions.

The construction and operation of the Cogeneration Project is not likely to have an observable effect on the local or regional climate.

#### **1.33.4 Dust**

Dust may be generated at the Cogeneration Site during the construction activities, such as site grading and fill. However, much of the site will use gravel, aggregate, or clean granular materials to provide solid working and traveling surfaces, including such areas as access roads. Nonetheless, BP will control fugitive dust through measures such as watering to reduce dust on roads and active construction areas where soil is exposed; promptly revegetating disturbed areas; limiting clearing activities to the minimum area necessary; and covering topsoil storage piles as required to lessen the impacts associated with wind.

#### **1.34 WAC 463-42-322 Natural Environment – Water**

*The applicant shall provide detailed descriptions of the affected natural water environment, project impacts and mitigation measures and shall demonstrate that facility construction and/or operational discharges will be compatible with and meet state water quality standards. The applicant shall indicate the source and the amount of water required during construction and operation of the plant and show that it is available for this use and describe all existing water rights, withdrawal authorizations, or restrictions, which relate to the proposed source.*

- (1) Surface water movement/quality/quantity - The application shall set forth all background water quality data pertinent to the site, and hydrographic study data and analysis of the receiving waters within one-half mile of any proposed discharge location with regard to: Bottom configuration; minimum, average, and maximum water depths and velocities; water temperature and salinity profiles; anticipated effluent distribution and dilution, and plume characteristics under all discharge conditions; and other relevant characteristics which could influence the impact of any wastes discharged thereto.*



- (2) Runoff/absorption - The applicant shall describe how surface water runoff and erosion are to be controlled during construction and operation, how runoff can be reintroduced to the ground for retention to the ground water supply, and to assure compliance with state water quality standards.*
- (3) Floods - The applicant shall describe potential for flooding, identify the five, fifty, one hundred, and five hundred year flood boundaries, and all protective measures to prevent possible flood damage to the site and facility.*
- (4) Ground water movement/quantity/quality - The applicant shall include the results of a comprehensive hydrologic survey, describe the ground water conditions on and near the site and any changes in ground water movement, quantity, or quality which might result from project construction or operation.*
- (5) Public water supplies - The applicant shall provide a detailed description of any public water supplies, which may be used or affected by the project during construction or operation of the facility.*

The Application contains additional information regarding these issues at Part II, Chapter 3, Section 3.3 and 3.13, and Part III, Appendix F (Water). A very brief summary is provided here.

#### **1.34.1 Surface Water Movement/Quality/Quantity**

The Cogeneration Project is located in Water Resources Inventory Area 1 (WRIA) as designated by the Washington State Department of Ecology. The watershed includes Terrell Lake, located about two miles southeast from the Cogeneration Project site. Terrell Creek is the main identifiable surface water body in the immediate project vicinity. It flows in a generally northwesterly direction, north of the proposed site and into Birch Bay (Strait of Georgia). Several smaller tributaries that drain surrounding land contribute flows to Terrell Creek. No base flow data are available for Terrell Creek from USGS or other government databases. Likewise, there is no existing water quality data for Terrell Creek. Terrell Creek is not included on the Department of Ecology's section 303(d) list of impaired waters.

The Cogeneration Project site generally drains to the west and north where stormwater is collected into manmade drainage ditches on the south side of Grandview Road. The runoff then flows parallel to Grandview Road before crossing under the road and discharging into a natural drainage system, including wetlands and man-made duck ponds. This natural drainage enters Terrell Creek approximately 0.5-miles from the outlet of Terrell Creek, where it flows into Birch Bay. There is a small man-made retention structure in the drainage area north of Grandview Road prior to its confluence with Terrell Creek.

The Cogeneration Project will not impact Terrell Creek or other surface water bodies. Stormwater will be routed around the site and the quantity of surface water runoff from the site will remain approximately the same as the present condition. During construction, stormwater quality will be preserved by utilizing BMPs to control erosion on the site, and through the use of stormwater settling and ~~retention~~-detention basins prior to flowing the stormwater runoff into the natural drainage system north of Grandview Road.

During operation, the Cogeneration Project will utilize much of the same stormwater system that was designed for the construction of the project. However, the project will



include grassy swales around the perimeter of the site prior to routing the stormwater into a detention basin and then into a wetland mitigation area. While acting to filter and cleanse the stormwater, the grassy swales will also provide a source of food and nutrients as a result of insect drift for downstream fisheries resources in the Terrell Creek watershed. Stormwater quality from the site is anticipated to be equal to, or better quality, than that which is currently being discharged from the site.

Additional information regarding surface water characteristics is presented in Part II, Chapter 3, and Part III, Appendix F (Water).

#### **1.34.2 Runoff/Absorption**

The general soil type that encompasses most of the Cogeneration Project vicinity is the Whitehorn silt loam. Permeability in these soils is slow to moderate. Due to the relatively flat terrain and soil characteristics, increased runoff during construction and operation of the Cogeneration Project, it is expected to be easily manageable through the implementation of standard construction techniques such as silt fence, straw bales, and diversion ditches as required.

#### **1.34.3 Floods**

The proposed Cogeneration Project site is located outside of the 5-year, 50-year, 100-year and 500-year floodplains. Site soils are fairly impervious and terrain is relatively flat, with generally well-established vegetation. As a result, flood hazard is very low and flooding at the site is not an issue. Additional information regarding local conditions is found in Part II, Appendix F (Water).

#### **1.34.4 Groundwater Movement/Quantity/Quality**

The construction and operation of the proposed Cogeneration Project will not impact ground water. Groundwater flow in the project vicinity is generally toward the west. According to nearby water table elevation contours, it appears that elevations may decrease from about 80 feet MSL, just to the east of the proposed site. Groundwater in the upper zone flows to the northwest towards Terrell Creek and in the vicinity of Terrell Creek may be in hydraulic continuity with the creek. Water levels in wells in the Deming Sand underlying aquifer often exceed 50 feet below ground surface, indicating that Terrell Creek may be isolated from aquifers at the project location. Groundwater quality in the basin typically has low dissolved solid content. Further information on groundwater is available in Appendix F, Water.

#### **1.34.5 Public Water Supplies**

The project has been designed to minimize fresh water use by including the use of air-cooled condensers and using recycled industrial water from Alcoa and recycling of the Cogeneration Project's HRSG blowdown water for reuse in the cooling tower. at the Refinery. As a result, the Cogeneration Project will only increase the total use of water at the Refinery by an average of approximately 40 gpm, which is well within BP's existing contract volume from the Whateom County PUD. As indicated above, the Cogeneration Project will not require any new water intake structures.

Water used for industrial purposes within the Cogeneration Project would be supplied by Whatcom County Public Utility District (PUD), from recycled cooling water used at the nearby Alcoa aluminum smelter. On average the Cogeneration Project would require 2,244 to 2,316 gpm of industrial water and, 2,780 gpm of recycled water will be available. The additional recycled water will be used by the Refinery, resulting in an average reduction of 484 to 556 gpm of fresh water needed to be withdrawn from the Nooksack River.

Birch Bay Water Sewer District (District) will provide potable water through the existing connection with the Refinery system. Use of potable water during operation of the facility will be minimal, ~~averaging approximately between 1 and 5 or 2~~ gpm.

Additional information on public water is presented in Part II, Chapter 2, (Project Description) and in Part III, Appendix F (Water).

### **1.35 WAC 463-42-332 Natural Environment – Plants and Animals**

- (1) Habitat for, and number or diversity of species of plants, fish, or other wildlife - The applicant shall describe all habitat types, vegetation, wetlands, animal life, and aquatic life which might reasonably be affected by construction, operation, or cessation of construction or operation of the energy facility and any associated facilities. Assessment of these factors shall include density and distribution information. The application shall contain a full description of each measure to be taken by the applicant to protect all habitat types, vegetation, wetlands, animal life, and aquatic life from the effects of project construction, operation, abandonment, termination, or cessation of operations.*
- (2) Unique species - Any endangered species or noteworthy species or habitat shall receive special attention.*
- (3) Fish or wildlife migration routes - The applicant shall identify all fish or wildlife migration routes, which may be affected by the energy facility or by any discharge to the environment.*

These issues are addressed in detail in Part II, Chapter 3, and Part III, Appendix H (Plants and Animals). A brief summary is provided here.

#### **1.35.1 Habitat for, and Number or Diversity of Species of Plants, Fish, or Other Wildlife**

Wildlife, vegetation, and wetland assessments have been conducted at the Cogeneration Project site. Based on these assessments, the potential impacts to wildlife and upland vegetation resources will be minor. The project will result in the loss of some low-value wetlands, but a wetland mitigation plan will be implemented that will result in a net improvement in wetland functions in the area.

The total land area to be impacted by the Cogeneration Project site, laydown areas, and access roads is approximately 69 acres. This land is contiguous with the Refinery. Of this 69 acres, 33 acres will be used for the Project site and the remainder will be equipment laydown areas. This land is fallow grassland, that was once used as agricultural land. From 1989-1992, BP planted hybrid poplar trees and conifers in some areas with the intention of harvesting them at a later date.

The Cogeneration Project site does not support a diverse or dense population of wildlife or wildlife habitat. Wildlife that may occasionally use the project site includes songbirds, small mammals, black-tailed deer, and coyote.

A wetland mitigation plan ~~is being~~ has been developed to mitigate for the wetland impacts on BP-owned land north of Grandview Road. The mitigation plan will consist of ~~both~~ wetland "restoration," "rehabilitation" and "enhancement," and "creation," and will be In consultation with the Corps of Engineers and the Washington Department of Ecology, it has been designed to achieve an overall improvement in wetland function, including a gain in the productivity, diversity, and area of useable habitat for aquatic and terrestrial resources.

Although no specific mitigation is planned for loss of upland wildlife habitat at the project site, the wetland mitigation plan will include establishing a diverse fringe habitat, including uplands, so that overall habitat diversity and productivity will be greater than what currently exists at the Cogeneration Project site. In addition, the mitigation site is near Terrell Creek and will enhance the overall Terrell Creek wildlife corridor and ecosystem. More information is provided in Part III, Appendix H (Plants and Animals).

### 1.35.2 Unique Species

Based on an evaluation of the habitat and onsite observations, unique species, including listed and candidate species will not be impacted by the proposed Cogeneration Project.

Nevertheless, due to the potential presence of unique species within the general vicinity of the Cogeneration Project site, a Biological Evaluation (BE) was prepared, which discusses potential impacts to endangered, threatened and candidate species (Golder Associates, 2002; Appendix H).

The following is a summary of the ~~BE~~ EA findings related to wildlife. Federally-listed and candidate species potentially occurring within the vicinity (approximate 2-mile radius) of the Cogeneration Project include:

- Humpback whale (*Megaptera novaeangliae*) – Endangered
- Leatherback sea turtle (*Dermochelys coriacea*) – Endangered
- Steller sea lion (*Eumetopias jubatus*) – Threatened
- Bald eagle (*Haliaeetus leucocephalus*) – Threatened
- ~~Marbled murrelet (*Brachyramphus marmoratus*) – Threatened~~
- Chinook salmon (*Onchorhynchus tshawytscha*) - Threatened
- Bull Trout (*Salvelinus confluentus*) - Threatened
- Coho Salmon (*Onchorhynchus kisutch*) - Candidate

Because the Cogeneration Project site will not be constructed in or near the marine environment, there will be no impact to the listed species of marine mammals and sea turtles identified from these lists. Similarly, because there are no significant nesting trees or preferred prey items within the Cogeneration Project site, laydown areas, or along the access roads, there will be no impact on bald eagles in the area. ~~Finally, marbled murrelet populations will not be affected by the project because there is no~~

suitable nearby nesting habitat (including old-growth forests) and there will be no impact to marine waters off Cherry Point.

In addition to the federally-listed species, there are state-listed priority and sensitive wildlife species. Information about these species is provided in Part II, Section 3.6. The following species may occur within the immediate vicinity of the proposed project area:

- Long-eared myotis (*Myotis evotis*) – monitor species
- Long-legged myotis (*Myotis volans*) – monitor species
- Trumpeter Swan (*Cygnus buccinator*) – priority species
- Common Loon (*Gavia immer*) – sensitive species
- Great blue heron (*Ardea herodias*) – monitor species

However, none of these species were observed during field surveys.

### 1.35.3 Fish and Wildlife Migration Routes

The construction and operation of the Cogeneration Project are not likely to adversely impact fish and wildlife migration routes. The Pacific Flyway for migrating birds covers onshore and offshore areas of western Washington, including the area surrounding the Cogeneration Project. However, the Cogeneration Project is not likely to affect migrating birds because its location next to the refinery and proximity to other nearby industrial sites would cause little difference to migratory patterns.

Migrating fish, including chinook, coho, winter steelhead, and sea-run cutthroat trout, may be found in the Strait of Georgia to the west of the site. Some of these anadromous fish may use downstream reaches of Terrell Creek, but they cannot access ephemeral roadside ditches and drainages next to the proposed Cogeneration Project. The Cogeneration Project is not likely to affect these fish species because the Project will not discharge wastewater to Terrell Creek, and stormwater pollution prevention plans will be implemented to prevent adverse impact to stormwater quality that may eventually drain to Terrell Creek.

There are no migratory routes identified for large mammals in the immediate vicinity of the project. There are local populations of both deer and black bear within the vicinity of the proposed project, mainly south of Brown Road in forested areas. The open nature of the plant site is a relatively effective barrier for most large mammal species, as they prefer to spend most of their time in areas of cover.

### 1.36 WAC 463-42-342 Natural Environment – Energy and Natural Resources

- (1) *Amount required/rate of use/efficiency - The applicant shall describe the energy and natural resource consumption during both construction and operation of the proposed facilities as rate of use and efficiency that can be achieved during construction and operation.*
- (2) *Source/availability - The applicant shall describe the sources of supply, locations of use, types, amounts, and availability of energy or resources to be used or consumed during construction and operation of the facility.*

- (3) *Nonrenewable resources - The applicant shall describe all nonrenewable resources that will be used, made inaccessible or unusable by construction and operation of the facility.*
- (4) *Conservation and renewable resources - The applicant shall describe conservation measures and/or renewable resources, which will or could be used during construction and operation of the facility.*
- (5) *Scenic resources - The applicant shall describe any scenic resources, which may be affected by the facility or discharges from the facility.*

### **1.36.1 Amount Required/Rate of Use/Efficiency**

A summary of the natural resource requirements, rate of use, and efficiency is provided below. More detailed information is provided in Part II, Section 3.8.

#### **1.36.1.1 Construction**

Natural gas or propane will be consumed in very small quantities in equipment and heaters used during the construction process. Diesel fuel and gasoline consumption for portable generators, vehicles, and other construction equipment during the construction phase is estimated at approximately 600,000 gallons.

Electricity will be used for lighting and heating in construction offices, for temporary lighting at the facility, and to provide power to construction equipment. The estimated electricity peak demand during construction is approximately 2.5 million volt-amps (MVA) at 480 volts or lower voltage. During non-working hours electricity consumption will primarily be for security lighting.

#### **1.36.1.2 Operation**

The Cogeneration Project design includes high efficiency natural gas combustion turbines, a heat-recovery steam generator, steam turbine and generator, and an integrated steam system to supply the Cherry Point Refinery. Cogeneration offers major environmental benefits because it turns otherwise wasted heat into a useful energy source. BP will use residual heat that would otherwise be discarded, or not used as efficiently, as steam in the refining process. Thus, cogeneration eliminates the need to burn additional fuels for the sole purpose of generating steam at the Refinery. By providing steam to the refinery, BP can shut down existing boilers. The Cogeneration Project will operate at an efficiency of approximately ~~65~~63% (or higher), compared to an efficiency of approximately 53% for a stand-alone facility using the same equipment. Because of its high efficiency, the Cogeneration Project will burn less natural gas to produce electricity and steam.

### **1.36.2 Source/Availability**

During construction, ~~Puget Sound Energy (PSE) will supply~~ electricity will be supplied to the Cogeneration Project through the existing refinery substation. After the Cogeneration Project substation is constructed and energized, power would be obtained from the 230 kV BPA system. Following commencement of operation, the Cogeneration Project will operate from station power (provided by the generation facility) generated by the combustion turbines or from power obtained from the 230 kV BPA system. Additional description of energy resources is included in Chapter 3, Section 3.8.

The Cogeneration Project will be fueled by natural gas. The existing Ferndale Pipeline is capable of delivering the majority of the natural gas required for the Cogeneration

Project to operate at full capacity. This pipeline currently transports natural gas to the Refinery and the Alcoa (Intalco) aluminum smelter from the Sumas gas-trading hub that is served by both the Westcoast pipeline and the Northwest pipeline. If additional natural gas is required it will be delivered by a third-party pipeline, which is routed alongside the Ferndale pipeline on the west side of the Project site.

Enormous gas resources exist in Western Canada and the Rocky Mountains; and numerous upgrades to the western pipeline systems are underway. The Cogeneration Project will use less natural gas per kWh than state-of-the-art combined-cycle plants, and therefore, will place less of a demand on natural gas resources and the gas transportation system than comparable facilities without cogeneration.

### 1.36.3 Other Nonrenewable Resources

The principal other nonrenewable resources used to construct the Cogeneration Project are sand and gravel.

Table 1-10 lists estimated quantities of sand and gravel and other nonrenewable materials to be consumed during construction of the Cogeneration Project, including the ancillary facilities such as the gas compressor facility.

TABLE 1-10

#### Construction Materials and Commodities Consumed

Material	Quantity
Imported Fill	126,000 cubic yards
Sand and gravel	27,650 cubic yards
Concrete	25,200 cubic yards
Steel	1,050 tons
Piping	130,000 lineal feet

### 1.36.4 Conservation and Renewable Resources

Cogeneration is the most efficient way to utilize the energy contained in natural gas to produce both electricity and steam. A simple cycle combustion turbine or typical boiler produces electricity with a 30-40% efficiency. The state-of-the-art combined cycle combustion turbine technology that BP proposes to use typically operates at efficiencies of 53-55%. By combining this high efficiency design with a cogeneration configuration, BP will increase the energy conversion efficiency to ~~over 65~~approximately 63% percent.

Because the Cogeneration Project will provide steam needed at the Refinery, BP will be able to conserve natural gas by decommissioning older less, efficient boilers. BP would also avoid having to install less efficient temporary generating equipment as it did in 2000 and again in 2001.

### 1.36.5 Scenic Resources

No scenic resources will be affected by the Cogeneration Project or by discharges from the Project. The Cogeneration Project will be constructed on land zoned high impact industrial adjacent to the largest oil refinery in Washington. At this location, it is compatible with the existing scenic resources and will not obstruct any scenic views. A single water vapor plume will occasionally be visible from the cooling tower. The



visibility of the plume will depend on the ambient temperature and relative humidity. The cooling tower design location will partially mitigate the visibility of the plume. On a very cold day it maybe possible to see water vapor from the HRSG stacks due to the moisture in the flue gas condensing as it contacts and mixes with the cold air outside the stack. Similar water vapor is produced by the Refinery's existing boilers and heaters on cold days. Visual impacts of the facility are minimized by the use of air-cooled condensers so there will be no steam plumes coming from the facility. Lighting will be kept to a minimum and directed inward to the facility to minimize nighttime glare. The HRSG stacks will be 150 feet tall, so they will not be required to have aircraft warning lights. Additional information, including simulations of the completed project on the project site, is provided in Part II, Section 3.11.

### **1.37 WAC 463-42-352 Built Environment – Environmental Health**

- 1) Noise - The applicant shall describe the impact of noise from construction and operation and shall describe the measures to be taken in order to eliminate or lessen this impact.*
- 2) Risk of fire or explosion - The applicant shall describe any potential for fire or explosion during construction, operation, standby or nonuse, dismantling, or restoration of the facility and what measures will be made to mitigate any risk of fire or explosion.*
- 3) Releases or potential releases to the environment affecting public health, such as toxic or hazardous materials - The applicant shall describe any potential for release of toxic or hazardous materials to the environment and shall identify plans for complying with the federal Resource Conservation and Recovery Act and the state Dangerous waste regulations (chapter 173-303 WAC). The applicant shall describe the treatment or disposition of all solid or semisolid construction and operation wastes including spent fuel, ash, sludge, and bottoms, and show compliance with applicable state and local solid waste regulations.*
- 4) Safety standards compliance - The applicant shall identify all federal, state, and local health and safety standards, which would normally be applicable to the construction and operation of a project of this nature and shall describe methods of compliance therewith.*
- 5) Radiation levels - For facilities, which propose to release any radioactive materials, the applicant shall set forth information relating to radioactivity. Such information shall include background radiation levels of appropriate receptor media pertinent to the site. The applicant shall also describe the proposed radioactive waste treatment process, the anticipated release of radionuclides, their expected distribution and retention in the environment, the pathways that may become sources of radiation exposure, and projected resulting radiation doses to human populations. Other sources of radiation, which may be associated with the project, shall be described in all applications.*

#### **1.37.1 Noise**

Noise modeling of the Cogeneration Project under operating conditions indicates that the facility will comply with local and state regulations. To further evaluate the potential impacts of the Project, background noise measurements were taken at 15 different locations in the vicinity of the proposed Project, and those existing levels were compared

to post-operation levels predicted by the model. The comparison demonstrated that noise from the Cogeneration Project would rarely be perceptible. [In 2003, more extensive background monitoring was performed at the four residential receptors closest to the project site, and additional modeling was performed to take into account the changes in the project design. This further analysis indicates that the Cogeneration Project will comply with applicable regulatory requirements and is not expected to have a perceptible impact on A-weighted or C-weighted sound levels at residential receptors.](#) Additional information on the noise evaluation can be found in [Part II, Section 3.9 and Part III, Appendix K \(Noise\).](#)

### **1.37.2 Risk of Fire or Explosion**

During construction of the facility, the risk of fire or explosion will be small because much of the material used during the construction is not flammable, and only small quantities of flammable liquids and compressed gasses will be used. Flammable liquids will include fuel, cleaning solvents, and paints. Flammable compressed gases will include acetylene and oxygen for welding, and hydrogen for cooling the generators. Cylinders of compressed inert gases can also pose a potential hazard due to the energy present in gasses stored at high pressure. However, methods to effectively reduce potential risks will comprise an important part of overall facility safety. Ensuring that construction managers and workers adhere to applicable hazardous materials storage and handling procedures and health and safety programs will minimize the risks of these hazards.

Operation of the Cogeneration Project will require the use of natural gas, lubricants, transformer mineral oil, and ammonia for emission control systems. During normal operation, there is minimal risk of fire or explosion. Following industry and Occupational Safety and Health Administration guidelines will greatly reduce risks during operation. The Cogeneration Project will strictly adhere to these guidelines and ensure all employees are properly trained in the appropriate procedures.

The Cogeneration Project fire protection system will consist of a firewater loop, [firewater pumps](#), an automatic deluge system for transformers, a sprinkler system for steam turbine components, and various detection and alarm systems. Occupied buildings will also have built-in systems to detect fire and carbon monoxide, ~~automatically suppress gas,~~ and other safety functions. Further information is provided in Appendix J (Emergency and Security Plans).

### **1.37.3 Releases or Potential Releases to the Environment Affecting Public Health**

The potential for releases at the Cogeneration Project will be minimal. During construction the only substances used at the facility with a potential for a significant release will be fuel, oil, and lubricants. The following precautions will be in place to minimize the risk to the environment and public health:

- Equipment refueling will be closely supervised to avoid leaks or releases. If fuel tanks are used during construction, the fuel tank(s) will be located within a secondary containment with an oil-proof liner, sized to contain the single largest tank volume plus an adequate freeboard allowance for rainwater.
- Lubricating oil will be stored in barrels within a secondary containment area designed to contain any spillage, or in temporary warehouses.

- Transformer oil will be pumped from a truck within a temporary secondary containment area. The use of transformer oil made from soybeans will be investigated.

During operation of the plant the only hazardous materials proposed for use at the project site in quantities exceeding the reportable amounts are anhydrous ammonia and sulfuric acid. Spill prevention and control procedures will be incorporated into the project design for other materials that may be subject to spillage, including the following:

- Transformer oil: Transformers will be installed within secondary containment areas that will hold the transformer's volume plus an adequate freeboard to accommodate rainwater.
- Anhydrous ammonia tank: Spills from the ammonia tank will be contained within a secondary containment area around the tank that will contain 150 percent of the working volume. The additional containment is provided to accommodate water from an overhead deluge spray system designed to minimize the effects of an ammonia release.
- Caustic tanks: Spillage from these tanks will be contained within a secondary containment area that is sized with sufficient freeboard for rainwater.
- Acid tanks: Spillage from these tanks will be contained within a secondary containment area that is lined with an acid-proof coating and sized with sufficient freeboard for rainwater.
- Steam cycle chemicals: Oxygen scavenger, neutralizing amine, and phosphate storage tanks are located indoors and will be contained in a curbed area that is sized to contain the entire contents of the single largest storage tank.
- Diesel fuel oil will be used to power the emergency generator and firewater pump. Fuel tanks for this equipment will be provided with secondary containment for spill control with adequate freeboard for rainwater if required.
- Lube oil tanks for major rotating equipment will be provided with secondary containment for spill control with adequate freeboard for rainwater if required.
- Cooling Tower Chemicals: These chemicals will be stored in vertical cylindrical tanks or in totes provided by the chemical vendor near the cooling tower in a curbed area sufficiently sized to contain the contents of the single largest storage tote.
- Oil-water sewer: The Cogeneration Project will be provided with an oil-water sewer (OWS) system that collects water from selected equipment drains and from rainfall or washdown runoff within curbed areas which have the potential to contact oil or oily residue. Collected drainage and runoff will be pumped or drained to the existing Refinery wastewater treatment system.

#### **1.37.4 Safety Standards Compliance**

The safety standards applicable to the Cogeneration Project are outlined in Part II, Sections 2.4, and 3.16. Also see Part III, Appendix J (Emergency and Security Plans).

### **1.37.5 Radiation Levels**

The only source of radiation during construction and operation of the facility will be from x-raying piping welds, including natural gas and steam piping. Operation of the plant will not generate radiation.

### **1.38 WAC 463-42-362 Built Environment – Land and Shoreline Use**

- (1) The relationship to existing land use plans and to estimated population - As part of the application, the applicant shall furnish copies of adopted land use plans and zoning ordinances, including the latest land use regulation and a survey of present land uses within the following distances of the immediate site area:
  - (a) In the case of thermal power plants, twenty-five miles radius;*
  - (b) In the case of petroleum refineries ten miles radius;*
  - (c) In the case of petroleum or LNG storage areas or underground natural gas storage, ten miles radius from center of storage area or well heads;*
  - (d) In the case of pipe lines and electrical transmission routes, one mile either side of centerline.**
- (2) Housing - The applicant shall describe potential impact on housing needs, costs, or availability due to influx of workers for construction and/or operation of the facility.*
- (3) Light and glare - The applicant shall describe the impact of lights and glare from construction and operation and shall describe the measures to be taken in order to eliminate or lessen this impact.*
- (4) Aesthetics - The applicant shall describe the aesthetic impact of the proposed energy facility and associated facilities and any alteration of surrounding terrain. The presentation will show the location and design of the facilities relative to the physical features of the site in a way that will show how the installation will appear relative to its surroundings. The applicant shall describe the procedures to be utilized to restore or enhance the landscape disturbed during construction (to include temporary roads).*
- (5) Recreation - The applicant shall list all recreational sites within the area affected by construction and operation of the facility and shall then describe how each will be impacted by construction and operation.*
- (6) Historic and cultural preservation - The applicant shall list all historical and archaeological sites within the area affected by construction and operation of the facility and shall then describe how each will be impacted by construction and operation.*
- (7) Agricultural crops/animals - The applicant shall identify all agricultural crops and animals which could be affected by construction and/or operation of the facility and any operations, discharges, or wastes which could impact the adjoining agricultural community.*

#### **1.38.1 Relationship to Existing Land Use Plans and to Estimated Populations**

BP has submitted a copy of Whatcom County's adopted land use plan and zoning ordinance as an attachment to the cover letter. However, BP has requested a waiver

from WAC 463-42-362 requiring the submittal of all adopted land use plans within a 25-mile radius within the project area because the project will only affect land use within Whatcom County. Additional information regarding land use regulations and relationship to the project is provided in Part II, Section 3.10.

### **1.38.2 Housing**

Construction of the Cogeneration Project will take approximately ~~23~~<sup>27</sup> months. Average monthly employment will be approximately 350 people, with a peak of approximately 705 people. Appendix L (Population and Housing) provides more specific information on the construction work force.

Based on an analysis of the existing workforce in Whatcom and surrounding counties, the majority of construction workers are expected to come from the local area. Some skills may be in high demand in the local area, so some skilled construction labor may come from outside the region on a temporary basis. Temporary housing is widely available near the Cogeneration Project site. At the peak of construction, it is estimated that approximately 100 construction workers may be seeking accommodations at the same time. This represents a relatively small demand on the approximately 1,700 motel rooms and over 15 mobile home and RV parks available in Whatcom County. For additional information on population, housing, and economics see Appendix L (Population and Housing).

### **1.38.3 Light and Glare**

Impacts from light and glare during the construction and operation of the Cogeneration Project will not be significant. The project is being constructed adjacent to the Refinery, so construction and operation of the facility will be incremental to existing industrial operations. The setting for the Cogeneration Project and the existing refinery is a rural area with few residences that have a direct view of the site, further limiting impacts of light and glare on sensitive receptors. The project site is set back 337 feet from the centerline of Grandview Road to provide space for vegetation to screen the Cogeneration Project from travelers on Grandview Road.

During construction, lighting will be limited to the construction headquarters and fenced security areas. During operation of the facility, lighting will be used for security and safety, but will be limited to the degree possible to minimize nighttime sky lighting. Lighting will be focused inward and downward, except for fence line security lighting that may be used to light the perimeter of the facility. Part II, Section 3.11 provides more information on visual light and glare.

### **1.38.4 Aesthetics**

Aesthetic impacts will be minimal. The proposed Cogeneration Project is to be constructed adjacent to the Refinery in an area zoned Heavy Impact Industrial. There will only be minor alterations to the existing topography, primarily grading to improve runoff. The facility will be located 337 feet from the centerline of Grandview Road, and a buffer zone between the project site and the road will be revegetated with trees to screen the project from those on Grandview Road.

### 1.38.5 Recreation

Construction of the proposed Cogeneration Project will not cause significant impacts to recreation facilities. Construction will not directly affect any recreational lands or facilities. The assembly of the construction workforce for the project is not likely to indirectly affect area recreational resources because the construction period is relatively short, and most construction workers are likely to already reside in the area. Moreover, there are numerous recreational opportunities to accommodate the workers who may temporarily relocate to the area.

Operation of the proposed Cogeneration Project will not adversely impact recreational resources. The closest recreational facilities are Birch Bay State Park and Terrell Lake Wildlife Refuge. Birch Bay State Park is approximately 2 miles away. ~~The only effect anticipated at the park is a barely perceptible increase in nighttime sound levels near the park entrance.~~ The nearest point of the Terrell Lake Wildlife Refuge is located 1.8 miles to the southeast of the project site and is not expected to be affected by Project operations.

More information about recreation resources is provided in Part II, Chapter 3, Section 3.13 and Part III, Appendix K

### 1.38.6 Historic and Cultural Preservation

A cultural resources study ~~will be~~ has been conducted on the project site, construction laydown areas, ~~and wetland mitigation area, prior to construction.~~

~~A cultural resources study was conducted during July and August 2001, on the transmission line corridor, maintenance access roads, and tower pads located adjacent to and south of the Cogeneration Project site.~~ There were no significant archeological findings. A summary of this information is provided in Section 3.14.

### 1.38.7 Agricultural Crops/Animals

The Cogeneration Project will not directly impact any commercial or active agriculture lands. However, the wetland mitigation project proposed for the area north of Grandview Road would utilize some lands that are currently leased to local farmers for cattle grazing. Part II, Section 3.5 provides more information on the agriculture crops and animals.

## 1.39 WAC 463-42-372 Transportation

- (1) *Transportation systems - The applicant shall identify all permanent transportation facilities impacted by the construction and operation of the energy facilities, the nature of the impacts and the methods to mitigate impacts. Such impact identification, description, and mitigation shall, at least, take into account:*
  - (a) *Expected traffic volumes during construction, based on where the work force is expected to reside;*
  - (b) *Access routes for moving heavy loads, construction materials, or equipment;*



- (c) Expected traffic volumes during normal operation of the facility;*
- (d) For transmission facilities, anticipated maintenance access; and*
- (e) Consistency with local comprehensive transportation plans.*
- (2) Vehicular traffic - The applicant shall describe existing roads, estimate volume, types, and routes of vehicular traffic, which will arise from construction, and operation of the facility. The applicant shall indicate the applicable standards to be utilized in improving existing roads and in constructing new permanent or temporary roads or access, and shall indicate the final disposition of new roads or access and identify who will maintain them.*
- (3) Waterborne, rail, and air traffic - The applicant shall describe existing railroads and other transportation facilities and indicate what additional access, if any, will be needed during planned construction and operation. The applicant shall indicate the applicable standards to be utilized in improving existing transportation facilities and in constructing new permanent or temporary access facilities, and shall indicate the final disposition of new access facilities and identify who will maintain them.*
- (4) Parking - The applicant shall identify existing and any additional parking areas or facilities which will be needed during construction and operation of the energy facility, and plans for maintenance and runoff control from the parking areas or facilities.*
- (5) Movement/circulation of people or goods - The applicant shall describe any change to the current movement or circulation of people or goods caused by construction or operation of the facility. The applicant shall indicate consideration of multipurpose utilization of rights of way and describe the measures to be employed to utilize, restore, or rehabilitate disturbed areas. The applicant shall describe the means proposed to ensure safe utilization of those areas under applicant's control on or in which public access will be granted during project construction, operation, abandonment, termination, or when operations cease.*
- (6) Traffic hazards - The applicant shall identify all hazards to traffic caused by construction or operation of the facility. Except where security restrictions are imposed by the federal government the applicant shall indicate the manner in which fuels and waste products are to be transported to and from the facility, including a designation of the specific routes to be utilized.*

### **1.39.1 Introduction**

Primary access to the Cogeneration Project site will be from a new private access road that will intersect the south side of Grandview Road (SR 548) east of Blaine Road. The proposed access road will extend approximately 320 feet south to the plant site, then continue into the site to connect with internal access roads, including a loop road around the perimeter of the site.

A secondary access to the site will be from the existing extension of Blaine Road, which extends south from SR 548 into the Refinery site. Private roads within the BP property will provide internal access between the Refinery and the Cogeneration Project. This will allow access to the Cogeneration Project from the existing refinery gates to the east, west and south.

A third access road will be constructed on BP property from the south boundary of the site to Brown Road. This road will intersect with maintenance roads for the transmission line.

The traffic and transportation information is summarized below, and more detailed information can be found in Part II, Section 3.14, and in Appendix I (Transportation).

### **1.39.2 Transportation Systems**

BP has identified all of the permanent transportation facilities that may be used in connection with the construction and operation of the Cogeneration Project. These include the access roads to the site and maintenance access to the proposed transmission line. Detailed information on expected traffic volumes, access routes, and operational traffic volumes is included in Part III, Appendix I (Traffic and Transportation).

### **1.39.3 Vehicular Traffic**

Project construction could affect traffic flow at the intersection of SR 548 and Portal Way and at the intersection of SR 548 and Blaine Road. This issue is addressed further in Part III, Appendix I: (Traffic and Transportation). The operation of the Cogeneration Project is not expected to affect traffic near the facility.

### **1.39.4 Waterborne, Rail, and Air Traffic**

Most construction materials for the facility will not require waterborne, air, or rail transport. However, the major pieces of large equipment (such as turbines, generators, and transformers) will likely be delivered by barge or rail. The transfer of components to trucks for delivery to the site would likely occur at existing local barge facilities or railroad track spurs on BP property. Cranes could be used to offload equipment onto heavy haul trailer trucks that would then transport the equipment to the site. If rail transport is used, it is expected that BNSF would be able to coordinate transport and unloading activities without adversely affecting their system.

### **1.39.5 Parking**

Parking will be provided at the construction office complex and an additional 3 acres will be set aside in the construction laydown area for construction worker parking. BP will encourage the construction contractor to facilitate carpooling to the extent possible. Stormwater management systems for these areas are described in Part II, Section 3.3 and Part III, Appendix F (Water).

### **1.39.6 Movement/Circulation of People or Goods**

As shown in Part II, Section 3.15 and Part III, Appendix I (Traffic and Transportation), the Cogeneration Project will not alter the movement or circulation of people or goods in the area.

### **1.39.7 Traffic Hazards**

An analysis of potential traffic, including the manner in which fuels and anhydrous ammonia are delivered to the site has been conducted (See Appendix I). No significant hazards are anticipated from the delivery of fuels and/or hazardous materials.

### **1.40 WAC 463-42-382 Built Environment – Public Services and Utilities**

*The applicant shall describe the impacts, relationships, and plans for utilizing or mitigating impacts caused by construction or operation of the facility to the following:*

- *Fire;*
- *Police;*
- *Schools;*
- *Parks or other recreational facilities;*
- *Maintenance;*
- *Communications;*
- *Water/storm water;*
- *Sewer/solid waste;*
- *Other governmental services or utilities.*

The Cogeneration Project is expected to have a positive effect on public services and utilities. The project will place relatively little demand on public services and utilities, relying upon infrastructure and emergency response resources already in place and available at the Refinery. At the same time, the tax revenue generated by the Cogeneration Project will provide significant funding for public services. More information on public services and utilities is found in Part II, Section 3.13.

#### **1.40.1 Fire**

Fire protection will be provided by the well-equipped and trained fire personnel at the Refinery. The Refinery has the equipment and training to respond in the unlikely event a fire or explosion should occur at the Cogeneration Project site. The Refinery fire response equipment is stored less than 0.5 mile from the project site and would have direct access to the project site without having to cross public roads. Although the Refinery has the specialized equipment to fight fires unique to refineries and power plants, and the training to fight these types of fires, BP will also work consult with the local fire district to ensure that back-up assistance, ~~and~~ support and resources are is available if needed. Specifically, BP will develop response protocols with the Jurisdiction Having Authority (JHA), Fire District # 7, to ensure that additional support and resources are available from the district and other fire jurisdictions through the District Mutual Aid Agreements.

#### **1.40.2 Police**

BP maintains a 24-hour security force that patrols both inside the fence line of the Refinery industrial facility and the surrounding BP land. Security is one of the highest priorities for the Refinery, and this same level of security will be provided to the Cogeneration Project.

Because of the short duration of the construction period and a limited number of construction workers coming from outside the area, construction of the project is not expected to have any impact on area police services.

#### **1.40.3 Schools**

Information regarding area schools is provided in Part II, Section 3.13. Neither construction nor operation of the Cogeneration Project is expected to add significant demands to area schools because substantial relocation of workers with families is not anticipated. Tax revenues generated by the projects will provide substantial funding for area school districts.

#### **1.40.4 Parks or Other Recreational Facilities**

See Section 1.38.5 above.

#### **1.40.5 Maintenance**

The Cogeneration Project will not impact public facilities, such as roads, drainage systems, or other infrastructure significantly. Public roads will be used by workers and to transport goods and materials to the project site, but with mitigation these impacts are anticipated to be minor. See Part II, Section 3.14, and Part III, Appendix I for more information on traffic impacts and mitigation measures.

#### **1.40.6 Communications**

Two daily newspapers, several smaller community newspapers, cable and satellite TV, Internet services, and telephone services serve Whatcom County. There will be no interruption of service or other impacts to the communication systems in Whatcom County as the result of the construction and operation of the Cogeneration Project.

#### **1.40.7 Water/Stormwater**

The Cogeneration Project will not significantly impact public water or stormwater facilities in Whatcom County. Approximately 1 to 2-5 gpm of potable water will be obtained from the Birch Bay Water and Sewer District (District). The District has the capacity to provide this water without significant impacts to current customers. For more information see Part II, Section 3.3, Water, and Part III, Appendix F (Water).

Water used for industrial purposes within the Cogeneration Project would be supplied by Whatcom County Public Utility District (PUD), from recycled cooling water used at the Alcoa aluminum smelter. On average the Cogeneration Project would require 2,244 to 2,316 gpm of industrial water, and 2,780 gpm of recycled water will be available. The

additional recycled water will be used by the Refinery, resulting in an average reduction of 484 to 556 gpm of fresh water needed to be withdrawn from the Nooksack River.

~~The Cogeneration Project will require approximately 604 gpm of non-potable water. However, the Cogeneration Project will enable the Refinery to make significant reductions in water usage, such that the net increase in fresh water consumption will average only 40 gpm. This additional water will be supplied by Whatcom County PUD-1 and is well within the volume the PUD has agreed to provide to BP.~~

Stormwater will be managed through two systems. Stormwater diverted around the Cogeneration Project and stormwater runoff other than that from storage tank selected containment areas or parking lots drains will be discharged into grassy swales around the perimeter of the facility and then into a detention pond, which will discharge into a wetland mitigation area. Stormwater collected in this system will remain in the Terrell Creek watershed and eventually flow into Terrell Creek.

~~The second stormwater system will collect Storm water from storage tank containment areas or parking lot drains, secondary containment areas which may that could contact oil or other contaminants will be. This water will be discharged into the Refinery wastewater system and treated in the Refinery wastewater treatment facility. After treatment, this water will be discharged directly into the Strait of Georgia.~~

For a more complete description of the Stormwater system see Part II, Section 3.3 Water, and Part III, Appendix F (Water).

#### **1.40.8 Sewer/Solid Waste**

There will be no significant impacts to public sewer systems as the result of constructing and operating the Cogeneration Project. Sanitary wastewater will be discharged into the Birch Bay Water and Sewer District (District) sanitary wastewater system that also serves the Refinery. The District has the capacity to serve the operational work force at the facility and no additional sewage system will have to be constructed to serve the Cogeneration Project.

Solid waste generated by the Cogeneration Project will be minimal and the impacts will not be significant to public solid waste facilities. The majority of waste generated will be during construction and will be managed through a solid waste service contract by the EPC contractor.

During operation of the facility, very little solid waste will be generated, primarily waste products from routine maintenance, non-hazardous waste from water treatment supplies, spent cellulose containing any residual oil from the condensate treating process, and wastes from personnel working at the facility. Additional information on solid waste management is provided in Part II, Section 3.13 Public Services and Utilities.

#### **1.40.9 Other Government Services or Utilities**

The Cogeneration Project will not impact other government services or utilities.

#### **1.41 WAC 463-42-385 PSD Application**

*The applicant shall include a completed prevention of significant deterioration permit application.*

A complete PSD application is provided in Appendix E (Air Quality).

#### **1.42 WAC 463-42-435 NPDES Application**

*The applicant shall include a completed National Pollutant Discharge Elimination System permit application.*

There are three NPDES permits related to the Cogeneration Project. First, the Project will require an NPDES permit for stormwater discharges during construction. Appendix F (Water) provides an application for this permit.

Second, the Project will require an NPDES permit for stormwater discharges from an industrial operation. Appendix F also (Water) provides an NPDES permit application for stormwater discharges during operation of the facility.

Third, the Refinery has an NPDES permit, which it will eventually need to modify to include the estimated ~~50-190~~ gpm average wastewater flow wastestream from the Cogeneration Project, assuming 15 cycles of concentration in the cooling tower. The NPDES permit for the Refinery is scheduled for renewal in 2004, and BP intends to have it modified at that time.

#### **1.43 WAC 463-42-525 Emergency Plans**

*The applicant shall describe emergency plans which will be required to assure the public safety and environmental protection on and off the site in the event of a natural disaster or other major incident relating to or affecting the project and further, will identify the specific responsibilities which will be assumed by the applicant.*

Emergency Plans are addressed in Part II, Section 3.16 and Part III, Appendix J.

#### **1.44 WAC 463-42-535 Socioeconomic Impact**

*The applicant shall submit a detailed socioeconomic impact study which identifies primary and secondary and positive as well as negative impacts on the socioeconomic environment with particular attention and analysis of impact on population, work forces, property values, housing, traffic, health and safety facilities and services, education facilities and services, and local economy.*

The Cogeneration Project will result in significant positive impacts to the local economy. A summary of those benefits is discussed below.

- Capital costs for the project are currently estimated at \$580 million, but will fluctuate as the project proceeds through detailed design.
- More than ~~600~~700 construction jobs would be created.
- Approximately 30 jobs will be created in the local area as a result of operation of the project.



- Approximately \$30 million in sales tax revenue will be generated by equipment and material purchases for project construction.
- Up to \$6 million of property tax revenue could be generated annually for Whatcom County during operation of the Cogeneration Project, assuming the current Project capital cost and average County tax assessment rate.
- The natural gas brokerage tax, utility tax and B&O tax would generate several million dollars of revenue for the state of Washington annually.
- Approximately \$1.8 million in salaries of operation personnel will generate additional business in the region.

Additional information on socioeconomic impacts can be found in Part II, Section 3.12 Population, Housing and Economics, and Part III, Appendix L (Population and Housing).

### **1.45 WAC 463-42-625 Criteria, Standards, and Factors Utilized to Develop Transmission Route**

*The applicant shall identify the federal, state, and industry criteria used in the energy transmission route selection and shall identify the criteria used and the construction factors considered in developing the proposed design and shall indicate how such criteria are met.*

#### **1.45.1 Transmission Line From the Cogeneration Project to BPA Transmission Lines**

BP proposes to construct a 230 kV transmission line from the Cogeneration Project to BPA's existing transmission lines east of the Project site. The transmission line will be 0.8 miles long, and will be located in a 150-foot wide corridor that can accommodate single poles or towers with double circuits. BP previously obtained wetlands permits for this transmission corridor in connection with prior plans for a transmission line. The route was originally selected because it provided the shortest route to BPA's transmission lines; it was located on BP property ; it stayed within the area zoned Heavy Impact Industrial; it had the least impacts on wetlands; and minimized the impact on wooded areas.

The Cogeneration Project proposes to use this route for the reasons it was originally selected, and to simplify the permitting process. In particular, BP has already obtained a section 404 permit from the U.S. Army Corps of Engineers and has implemented a wetland mitigation program to compensate for the wetland impacts in connection with this route.

#### **1.45.2 BPA Interconnection**

Part II, Section 2.1 and Part III, Appendix D provides information regarding the proposed interconnection with BPA's transmission lines.

The Cogeneration Project proposes to interconnect with a transmission line that runs between BPA's Custer Substation near Custer, Washington, and BPA's Intalco substation at the Alcoa Intalco works aluminum smelter. From the Custer Substation, electricity can be transmitted to load centers throughout the region.

BPA ~~is scheduled to~~ has initiated ~~a~~ a System Facilities Study and System Interconnection Facility Study for the Cogeneration Project ~~in the near future~~. Through that process, BPA and BP will determine the appropriate design for the interconnection.

BPA performed single contingency analysis for the Cogeneration project and Refinery load along with the potential Alcoa load on their two existing 230 kV transmission lines. This analysis determines whether each line by itself can carry all combinations of loads and generation possible in this system should the other transmission line fail. This analysis showed that under certain combinations of electrical loads, and when certain sections of transmission line are lost, one or more portions of the remaining line could exceed its thermal operating limit of 100 ° Celsius by up to 8%. Whether or not this occurs depends upon the ambient temperature at the time of the line loss. Alternatives under consideration to provide for this contingency are detailed in Appendix D Section 3.1.

#### **1.46 WAC 463-42-645 Analysis of Alternatives**

*The applicant shall provide an analysis of alternatives for site, route, and other major elements of the proposal.*

BP considered and evaluated alternative project sites, alternative plant configurations onsite, and alternative components. Information on alternatives is provided in Part II, Section 2.2 and in the Section 404(b)(1) Alternatives Analysis provided in Part III, Appendix H (Plants and Animals).

#### **1.47 WAC 463-42-655 Initial Site Restoration Plan**

*The applicant or certificate holder shall in the application, or within twelve months after the effective date of this section, whichever occurs later, provide an initial plan for site restoration at the conclusion of the plant's operating life. The plan shall parallel a decommissioning plan, if such a plan is prepared for the project. The initial site restoration plan shall be prepared in sufficient detail to identify, evaluate, and resolve all major environmental, and public health and safety issues presently anticipated. It shall describe the process used to evaluate the options and select the measures that will be taken to restore or preserve the site or otherwise protect all segments of the public against risks or danger resulting from the site. The plan shall include a discussion of economic factors regarding the costs and benefits of various restoration options versus the relative public risk and shall address provisions for funding or bonding arrangements to meet the site restoration or management costs. The plan shall be prepared in detail commensurate with the time until site restoration is to begin. The scope of proposed monitoring shall be addressed in the plan.*

An Initial Site Restoration Plan is outlined in Part III, Appendix M.

#### **1.48 WAC 463-42-665 Detailed Site Restoration Plan - Terminated Projects**

*When a project is terminated, a detailed site restoration plan shall be submitted within twelve months after termination or within twelve months after the effective date of this section, whichever occurs later. An extension of time may be granted for good cause*

*shown. The site restoration plan shall address the elements required to be addressed in WAC 463-42-655, in detail commensurate with the time until site restoration is to begin. The council may take or require action as necessary to deal with extraordinary circumstances.*

This WAC requirement does not apply to the Cogeneration Project at this time.

#### **1.49 WAC 463-42-675 Site Preservation Plan Suspended Projects**

*In the event that construction is suspended, a plan for site preservation shall be prepared at the earliest feasible time and the council shall be advised of interim concerns and the measures being taken to remedy those concerns. The site preservation plan shall address environmental, and public health and safety concerns, the scope of proposed monitoring and the provisions for funding or bonding to meet site preservation costs. It shall describe measures that will be taken to preserve the site or otherwise protect all segments of the public against risks or danger resulting from the site. The preservation plan shall also address options for preservation and the costs and benefits associated with those options. The council may take or require action as necessary to deal with extraordinary circumstances.*

This WAC requirement does not apply to the Cogeneration Project at this time.

#### **1.50 WAC 463-42-680 Site Restoration Terminated Projects**

*In the absence of a council determination as to the level of site restoration, restoration of the site to a reasonable approximation of its original condition prior to construction shall be required.*

This WAC does not apply to the Cogeneration Project at this time.

#### **1.51 WAC 463-42-685 Pertinent Federal, State, and Local Requirements**

- (1) Each application submitted to the council for site certification shall include a list of all applicable federal, state, and local codes, ordinances, statutes, rules, regulations and permits that would apply to the project if it were not under council jurisdiction. For each listed code, ordinance, statute, rule, regulation and permit, the applicant shall describe how the project would comply or fail to comply with each requirement. If the proposed project does not comply with a specific requirement, the applicant shall discuss why such compliance should be excused.*
- (2) Inadvertent failure to discover a pertinent provision after a reasonable search shall not invalidate the application, but may delay processing the application as necessary to gather and consider relevant information.*

The federal, state, and local codes, ordinances, statutes, rules, regulations, and permits that would apply to the project if it were not under EFSEC jurisdiction are identified and described in Part II, Chapter 2, Section 2-4.

**1.52 WAC 463-42-690 Amendments to Applications, Additional Studies, Procedures**

- 1) Applications to the council for site certification shall be complete and shall reflect the best available current information and intentions of the applicant.*
- 2) Amendments to a pending application must be presented to the council at least thirty days prior to the commencement of the adjudicative hearing, except as noted in subsection (3) of this section.*
- 3) Within thirty days after the conclusion of the hearings, the applicant shall submit to the council, application amendments which include all commitments and stipulations made by the applicant during the adjudicative hearings.*
- 4) After the start of adjudicative hearings, additional environmental studies or other reports shall be admitted only for good cause shown after petitions to the council or upon request of the council, or submitted as a portion of prefiled testimony for a witness at least thirty days prior to appearance.*

For subsection 1) above the cover letter to the ASC includes a statement that certifies the ASC is complete and reflects the best available current information and intentions of the Applicant.